



AIR MINISTRY

Memorandum by the Secretary of State for Air
on the Report of the Committee on Control of
Private Flying and other Civil Aviation Questions;
together with the Report of the Committee and
the Appendices thereto

*Presented by the Secretary of State for Air to Parliament
by Command of His Majesty
July, 1934*

LONDON

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I

MEMORANDUM
BY THE
SECRETARY OF STATE FOR AIR

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BY

THE SECRETARY OF STATE FOR AIR

PART 1.

It may be convenient, in presenting this Report to Parliament, to narrate briefly the circumstances in which the Committee was appointed, and further to indicate in outline the decisions of the Air Council upon its main recommendations.

In recent years, as the Committee recognise, the Air Council have progressively relaxed official control over civil aviation in various directions, *e.g.*, by the system of approved firms (whereby the firm's report that an aircraft complies with the published airworthiness requirements is, subject to general supervision by Air Ministry staff, accepted in lieu of a separate official investigation); by entrusting to a non-official organisation (the Joint Aviation Advisory Committee, to which further reference will be made below) an increasing volume of work in connection with the renewal of Certificates of Airworthiness; and by the institution of the Civil Airworthiness Committee, a body on which the outside interests concerned are represented and which is responsible for advising the Secretary of State in regard to airworthiness requirements for civil aircraft.

Early in 1933, however, the Air Council reached the conclusion that the time had come for a further comprehensive review of the regulations at present governing civil aviation, and in especial those affecting private aircraft, in order to ascertain whether, as a result of continued technical development, additional relaxation of official control was not now practicable.

A Committee of departmental officials was accordingly appointed and made a careful study of the whole question. Its report advocated substantial measures of decontrol. Thus it recommended that, subject to certain reservations (more particularly in connection with aircraft operating regular passenger services), *all* work in connection with certificates of airworthiness should be devolved to the Joint Aviation Advisory Committee, provided that body was effectively reconstituted. It further recommended that, subject to certain conditions including the institution of a system of compulsory third-party insurance, consideration should be given to making certificates of airworthiness optional for private aircraft.

In view, however, of the very important and complex issues involved, the Air Council decided that, before they formulated their final policy in regard to these matters, it would be in the public interest to have the field further reviewed by an independent and non-official Committee, to whom they could at the same time remit certain other important questions affecting the future of civil aviation. The Committee, whose report is now presented to Parliament, was accordingly appointed under the Chairmanship of Lord Gorell; and the Air Council are greatly indebted both to the Chairman and the individual members for the public spirit which induced them to serve on the Committee and for the ungrudging manner in which they have placed their services at the disposal of the department in the course of an enquiry which has proved both arduous and prolonged. Lord Gorell's Committee have in general endorsed the findings of the official Committee, whose report was specifically referred to them, and in certain respects have proposed that they should be carried further. They have also made important proposals in connection with the other matters remitted to them and in particular the question of compulsory third-party insurance. As will be seen from Part 2 below, His Majesty's Government have decided to implement the large majority of their recommendations, certain of which will in due course entail legislation.

PART 2.

The decisions which have been reached on the main recommendations of the Committee (set out in paragraph 107 of the Report) are as follows :—

RECOMMENDATIONS (i) AND (ii). These deal with matters which were not in fact remitted to the Committee. As the section of the Report on which these recommendations are based is entirely self-contained and in no way necessary to an understanding of the remainder, these recommendations are dealt with in Part 3 below in connection with the two minority reservations.

RECOMMENDATION (iii). A certificate of airworthiness should continue to be required for aircraft engaged in regular air transport, air-taxi, joy-riding, and training work.

The Air Council accept this recommendation.

RECOMMENDATION (iv). The control of airworthiness for civil aircraft should be devolved to a statutory autonomous Board formed from the Joint Aviation Advisory Committee of Lloyd's Register and the British Corporation Register.

The Air Council accept this recommendation in principle, subject to submission by the interests concerned of a scheme which is considered to be financially and technically practicable ; the degree of statutory recognition to be accorded to the new Board and its future designation will require further consideration. The Board of Trade have, however, found it necessary to retain strict control over the design, construction, and subsequent maintenance of passenger steamers carrying over 12 passengers ; and the Road Traffic Act of 1930 requires similar control to be exercised by the Ministry of Transport over public service vehicles carrying more than 7 passengers. In these circumstances, having regard to the fact that the technique of aircraft design is still fluid, and that the new Board will necessarily be experimental in character during the first years of its existence, His Majesty's Government consider that the Air Ministry must retain, for the present at all events, control over the airworthiness of the larger passenger aircraft used on regular air transport services.

RECOMMENDATION (v). The Air Ministry should not prescribe the detailed requirements to which aircraft should be built.

The Air Council accept this recommendation, subject to the exception in (iv) above in the case of the larger passenger aircraft used on regular air transport services.

RECOMMENDATION (vi). The devolution contemplated under Recommendation (iv) above should cover such matters as the system of approved firms, the approval of modifications, the inspection for renewal of certificates of airworthiness, and the system of ground engineers.

The Air Council accept this recommendation in principle.

RECOMMENDATION (vii). An annual grant should be made to the Board and the financial arrangements should be reviewed in three years' time.

The Air Council accept this recommendation in principle, and are prepared to provide for the payment from Air Votes of four-fifths of the ascertained deficit, within a maximum to be agreed, for a period not exceeding five years in the first instance.

RECOMMENDATION (viii). The representatives of the United Kingdom on the International Commission for Air Navigation should continue to press for the prescribing of international airworthiness standards in broad terms only, and also for international recognition of freedom from the certificate of airworthiness for private flying when this concession has justified itself by results in this country.

The Air Council accept this recommendation.

RECOMMENDATION (ix). Certificates of airworthiness issued by any first-class manufacturing State with experience of aircraft construction should be validated automatically, on a reciprocal basis, by this country.

The Air Council accept this recommendation in principle, subject to further examination with the interests concerned of its practicability in present circumstances, having regard to the very complex issues involved.

RECOMMENDATION (x). The possession of a certificate of airworthiness for aircraft used for private flying or aerial work should be at the option of the owner or hirer, but a third-party insurance policy (or an equivalent indemnity) should be effected and maintained.

The Air Council accept this recommendation ; they consider that a certificate of airworthiness should still be required for aircraft used for club flying, and understand that this was the Committee's intention.

RECOMMENDATION (xi). An inventor should be free to try out an experimental aircraft provided it bears identification marks, is insured against third-party risks, and is not flown to the common danger.

The Air Council accept this recommendation.

RECOMMENDATION (xii). The holder of a (private pilot's) "A" licence should be free, as now, to carry non-fare-paying passengers without official endorsement of his licence authorising him to do so.

The Air Council accept this recommendation.

RECOMMENDATION (xiii). The system of documents for aircraft should be revised ; when flying in this country private and aerial work aircraft should have to carry only the certificate of third-party insurance, and public transport aircraft only this certificate, the certificate of airworthiness and the licences of the crew.

The Air Council accept this recommendation.

RECOMMENDATION (xiv). Accidents to private aircraft should be reported and investigated officially only if they involve death or serious injury.

The Air Council accept this recommendation.

RECOMMENDATION (xv). A scheme of compulsory third-party insurance, or adequate alternative indemnity, against damage to persons or property on the ground, should be introduced : the basis of liability to be £100 for each 100 lb. of maximum total weight of the aircraft, subject to lower and upper limits of £5,000 and £25,000.

The Air Council accept this recommendation, subject to further consideration of the proposed limits of liability and other details.

RECOMMENDATIONS (xvi) AND (xvii). Towed gliders and gliders carrying passengers for hire and reward should possess certificates of airworthiness, to be issued by the Board referred to in Recommendation (iv), and their pilots should hold licences, to be issued by the Air Ministry on production of certificates of proficiency from the Royal Aero Club or other proofs of competency ; and gliders generally should be included in any scheme of compulsory third-party insurance.

The Air Council will give these recommendations their careful consideration, in consultation with the British Gliding Association and other interests affected. They consider it essential that no action should be taken which will unduly hamper the development of gliding.

They have further decided to give financial assistance to the gliding movement up to a maximum of £5,000 per annum for a period of five years.

RECOMMENDATION (xviii). It would be inappropriate to attempt to impose restrictions on Sunday flying in exercise of powers under the Air Navigation Act, and such action as is desirable should be taken under the Sunday Observance ordinances.

The Air Council accept this recommendation in principle.

PART 3.

As above stated, recommendations (i) and (ii) and the two minority reservations deal with questions which were not remitted to the Committee. In consequence no authoritative or considered official evidence was taken on their subject-matter and it is clear that, as a result, the two signatories of Reservation I are seriously misinformed as to the principles underlying the present organisation and the manner in which it functions to-day. A detailed analysis of all the misconceptions which colour the reservation in question (to which the remarks which follow are addressed rather than to the main report) is perhaps unnecessary. For a majority of the Committee realise that the divorce of civil aviation from the Air Ministry is in any event impracticable for a long time to come without extensive duplication and consequent expense, as well as actual detriment to civil air development in the field of research, whilst Reservation II (signed by the member of the Committee who represented the Society of British Aircraft Constructors and has the most extensive practical experience of the problems involved) expresses the opinion that ultimate responsibility for the control of civil aviation should remain with the Air Ministry. As, however, Reservation I contains a number of mis-statements of fact, which are none the less serious because they are unintentional, it appears necessary, in order to prevent further misunderstanding, to comment briefly on the more important of them.

The Air Council must emphasise in the first place that the implication that civil aviation is solely or primarily "viewed by the Air Ministry as a reserve of pilots for war and a potential set of machines to draw on in time of stress" is erroneous—as is indeed clear from the whole trend of the Ministry's policy in this matter. Civil aviation has, of course, an important if auxiliary rôle in the air defence of the Empire just as the mercantile marine has in its naval defence. But British air transport policy (unlike that of almost every other nation) has in fact been directed throughout first and foremost to *commercial* development for pacific imperial purposes. It has in consequence aimed at the maintenance of a civil air fleet and of personnel to man that fleet on a scale dictated by commercial needs alone; and there has at no time been any attempt to build up, in the guise of civil air transport, a fleet of uneconomic dimensions intended for military use in war. Similarly, the types of aircraft employed have been developed solely in the light of commercial requirements and in no case has their design been influenced in any way by considerations of potential military user. Thus there is in the present air transport subsidy scheme no element parallel, *e.g.*, to that in the subsidy scheme formerly in force between the Admiralty and the Cunard Company which provided for the incorporation in certain of their liners of constructional features

designed to fit them for use as armed cruisers in time of war ; nor do Air Votes contain anything corresponding to the small provision in current Navy Votes for work of a constructional character on merchant vessels which in case of emergency may be required for Naval Service. Again, the Air Council have throughout refrained from taking any action which might have the effect of " militarising " the subsidised light aeroplane clubs, *e.g.*, by imposing restrictions of age and sex on their members or making acceptance of a reserve liability a condition of the capitation grant, though strong arguments can be, and have been publicly, advanced in favour of so doing.

There is, further, no warrant for the suggestion that the fact that " the design of civil transport and private machines has shown more divergence from the military in this country than anywhere else " is due to " those in the Air Ministry concerned with Civil Aviation," if (as appears to be the case) the implication is thereby intended that this has been achieved in the teeth of opposition by other departments of the Air Ministry. It has on the contrary been due to the considered policy of the Air Council, implemented by *all* departments of the Ministry. Indeed, some of the most important civil developments in this country (*e.g.*, the light aeroplane and the light aeroplane club movement) were officially sponsored in the first instance, not by the civil aviation, but by the technical, department, though thereafter developed by both departments in close collaboration.

The statement that the increase in privately-owned aircraft in this country (mainly light aeroplanes) has been only 17 during the last three years is mistaken. The actual increase in the three calendar years 1931 to 1933 was (as shown in Appendix B to the Report) 75, or over 22 per cent. It is satisfactory to record that since January of this year there has been a further increase of approximately 90, making a total increase of 50 per cent. during the 3½-year period from January, 1931, to date, despite the difficult economic conditions which have prevailed. It is much to be hoped that this relatively rapid advance will be maintained, as there is clearly room for further expansion in this class of aircraft.

The argument that the character of the technical regulations which have to date governed civil aviation is due to the fact that civil aviation is under the control of a so-called " purely military " department, and that the course of events would have been different had it been under a civil department, will not bear examination. Thus in the United States of America civil aviation has throughout been administered by a purely civil department ; yet it is governed to-day by regulations fully as detailed as the corresponding British requirements. In general all leading countries which make civil aircraft have regulations similar in character and scope to our own governing their approval for certificates of airworthiness, whatever the nature of the authority responsible for the issue of such certificates.

Moreover, it appears to have been overlooked that in this country the Civil Airworthiness Committee (which, as explained in Part 1 above, comprises both official representatives and representatives of the various outside interests concerned and is responsible for advising the Secretary of State in regard to technical airworthiness requirements for civil aircraft) is presided over by the Director of Civil Aviation. As regards the status of this latter official, the recommendations made in the Report under this head appear to be based on a misunderstanding of the position. The presentation of civil aviation business to Council would not be advantaged by the changes suggested. On the contrary the special importance attaching to Civil Aviation has been clearly recognised by the fact that, alone of the Directorates of the Air Ministry, it is by Order in Council given the benefit of direct ministerial, rather than official, representation. Any change in this respect would accordingly be liable to have the reverse of the effect intended ; and the Air Council are not, therefore, prepared to entertain it. Finally, it may be observed that the tenor of Reservation I as a whole appears to be mainly due to failure to appreciate the fundamental fact that the Air Ministry is not a "purely military" department at all. Parliament has charged the Ministry with two major civil functions (Civil Aviation and Meteorology) independently of, and in addition to, its military responsibilities ; and His Majesty's Government have no intention of changing a basis of air organisation which has been so successful that it has since been adopted by foreign nations such as France and Italy.

LONDONDERRY.

15th July, 1934.

II

REPORT
OF
COMMITTEE

COMMITTEE ON CONTROL OF PRIVATE FLYING
AND OTHER CIVIL AVIATION QUESTIONS

THE RT. HON. LORD GORELL, C.B.E., M.C.

(*Chairman*).

CAPTAIN HAROLD BALFOUR, M.C., M.P.

E. C. GORDON ENGLAND, ESQ., F.R.Ae.S., F.I.M.T.

W. LINDSAY EVERARD, ESQ., M.P.

LIEUT.-COL. J. T. C. MOORE-BRABAZON, M.C., M.P.

F. HANDLEY PAGE, ESQ., C.B.E.

W. A. WORKMAN, ESQ., F.I.A.

W. W. BURKETT, ESQ., M.C., Air Ministry (*Secretary*).

TERMS OF REFERENCE

(a) Original Terms of Reference (July, 1933)

To examine the requirements of the present Air Navigation Regulations, with particular reference to those governing private flying, in such matters as certificates of airworthiness ; to consider whether, and in what respects, the present system of control by the Air Ministry should be modified by way of devolution or otherwise ; and to make recommendations in regard to these and any cognate questions which may be remitted to them by the Secretary of State.

(b) Further Terms of Reference (October, 1933)

To examine the whole question of establishing a system of compulsory insurance against liability for damage caused by civil aircraft to persons or property on the ground ; and to make recommendations with regard to this and any other matters affecting the insurance of aircraft which may emerge in the course of their enquiry.

Supplementary References

(c) " The Secretary of State has decided that in view of the extensions which have already been made in the scope of the Committee's original reference, there is no longer any objection to the question of Sunday flying by civil aircraft being remitted to it." *(December, 1933)*

(d) " The Under Secretary of State requests that the Committee will, if Lord Gorell agrees, regard this question (of Gliding) as falling within the scope of their investigations and in due course make such recommendations upon it as they see fit." *(January, 1934)*

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To : *The Most Hon. The Marquess of Londonderry, K.G., M.V.O.,
Secretary of State for Air.*

My Lord,

We have the honour to present the following Report on the subjects which you referred to us for examination.

I.—INTRODUCTION

1. Our original Terms of Reference on 4th July, 1933, required that our examination should be directed to the requirements of the Air Navigation Regulations, in particular those governing private flying, in such matters as certificates of airworthiness, and that we should consider the present system of administrative control by the Air Ministry. On the 5th July we were instructed that Your Lordship would be glad if we would at some convenient stage consider whether the holder of an "A" (private pilot's) licence should be free, as now, to carry private passengers without some endorsement on his licence, permitting him to do so.

Later, on the 11th October, we were requested in accordance with the last sentence of our original Terms of Reference, which contemplated further remits of cognate questions, to investigate the whole question of establishing a system of compulsory insurance against liability for damage caused by civil aircraft to persons or property on the ground.

Immediately following the announcement of our appointment we were asked by certain religious bodies to receive evidence from them on the subject of the disturbance caused to Divine worship by Sunday flying. We declined at that time to deal with this question, as we were given to understand that it fell outside the purport and scope of our enquiry as Your Lordship intended it. On 22nd December, however, when we had already made considerable headway with our work, we were informed that, in view of the extensions already made in the scope of our original reference, there was no longer any objection to the question of Sunday flying by civil aircraft being remitted to us, and that Your Lordship desired us to examine and advise upon it. Shortly afterwards we were asked to regard the question of gliding as falling within our province.

2. Many of the subjects before us have involved questions of some complexity, and the extension from time to time of our field of enquiry while our work has been in progress has not simplified our task.

3. We have, however, been very much helped by the preliminary investigations undertaken by an Air Ministry Committee under the Chairmanship of Mr. J. S. Ross, whose report was placed at our disposal.

That report was purposely framed so as to prepare the ground for the deliberations of an independent committee, and it has admirably accomplished its purpose.

We have in that connection noted with great interest Your Lordship's instruction to that Committee that the Air Council's policy is to give the maximum possible freedom to private flying, and that ways and means must be found for overcoming any technical and other difficulties encountered in implementing that policy.

4. We agree with the pronouncement in the Ross Committee Report "that the policy of control of private flying . . . cannot be settled in isolation ; the future control of civil aviation in respect of all airworthiness matters must be considered *as a whole*." Our original terms of reference suggested that our enquiries should be directed in particular to private flying. As our investigations proceeded, however, we found it impossible to deal with the private flying aspect of civil aviation in isolation, especially when considering such questions as Air Ministry control and its devolution, third party insurance, and Sunday flying. In these matters policy can only be considered in its bearing on civil aviation as a whole.

5. We have held 24 meetings, and have examined orally 72 witnesses. In connection with our main subject these have included representatives of the Air Ministry and the Ministry of Transport ; the Automobile Association, the Society of British Aircraft Constructors, the General Council of Associated Light Aeroplane Clubs, the Guild of Air Pilots and Air Navigators of the British Empire, the Joint Aviation Advisory Committee of Lloyd's Register and the British Corporation Register, and private owners ; Airwork, Ltd., Air Service Training, Ltd., Thomas Cook & Sons, Ltd., Imperial Airways, Ltd., National Flying Services, Ltd., Midland and Scottish Air Ferries, Ltd., Phillips and Powis (Reading), Ltd., Portsmouth, Southsea, and Isle-of-Wight Aviation Company, Ltd., Scottish Motor Traction Company, Ltd. ; the Accident Offices Association, the British Aviation Insurance Company and Lloyd's Underwriters.

On the question of gliding we have received evidence from the British Gliding Association, the London Gliding Club, the Bradford and County Gliding Club and Mr. E. J. W. Addyman. On the control of Sunday flying we have heard representatives of the Committee on Church and Nation of the Church of Scotland, the Free Church of Scotland, the Imperial Alliance for the Defence of Sunday, the Lord's Day Observance Society, the Lord's Day Observance Association of Scotland ; the Royal Aero Club, the

General Council of Associated Light Aeroplane Clubs, Midland and Scottish Air Ferries, Ltd., National Aviation Day, Ltd., and Scottish Motor Traction Company, Ltd.

We desire to express our indebtedness to these witnesses individually and to the bodies which they represented, for their assistance.

We have, in addition, received memoranda and letters from other bodies and individuals from whom we have not taken oral evidence, including, in connection with Sunday flying, communications from the Association of Municipal Corporations, the Rt. Rev. Bishop Joseph Butt on behalf of the Cardinal Archbishop of Westminster, the National Council of the Evangelical Free Churches, the Church of England Men's Society, the Edinburgh Good Government League, the Middlesex United Committee for Sunday Defence and other religious bodies.

We wish also to express our thanks to these bodies and individuals.

6. Throughout our enquiry we have been faced on nearly every subject with considerable disagreement in the evidence, not only as between different interests, but also between representatives of the same interests, and at times even between the representatives of the same organisation. Judging from the incorrect statements made to us in all good faith in evidence, there appears to be a good deal of misunderstanding of the regulations on points of some importance, even on the part of those who are in constant touch with them.

II.—HISTORY OF AIR CONTROL

7. Before considering the regulations as they exist to-day, it will be material to review briefly the history of the national and international control of civil aviation, as bearing on our problem in certain respects.

8. In 1910, as the result of the development of airship construction and the wide radius of operation of these aircraft, attention was turned to the necessity for an agreement to regulate international flying, and a conference was convened in Paris to formulate a convention. This conference split on the question of the right of each State to the Sovereignty of the air over its territory and the impossibility of reconciling conflicting views on the subject. It left in draft, however, a convention which proved of considerable assistance when efforts to conclude an agreement were eventually renewed.

Following on this conference, the Home Office prepared in 1911 a draft Aerial Navigation Bill which covered much of the ground dealt with in the present Act and Orders ; but time was not then ripe for its issue, and it did not emerge from the draft stage.

9. The sole purpose of the first Aerial Navigation Act passed in 1911 was the protection of the public against dangers arising from the navigation of aircraft, and it authorised prohibition by Order of flight over areas to be prescribed. The administration of the Act devolved on the Home Office, but no Orders under it were immediately issued.

The purpose of the 1911 Act was in 1913 extended by the Aerial Navigation Act, 1913, to include the defence and safety of the Realm. Power was given to prescribe the areas within which aircraft coming from abroad must land. Orders by the Home Secretary were issued on the 1st March, 1913, prohibiting flight over certain areas, limiting entry to prescribed strips of the coast, specifying compulsory landing grounds, and describing the procedure to be observed by visiting aircraft. The carriage of dutiable goods and mails was forbidden.

On the 22nd September, 1913, a further Order was issued prohibiting the flight of aeroplanes over London within a radius of four miles from Charing Cross.

Then came the war. By Home Office Order dated 2nd August, 1914, the flight of civil aircraft in the United Kingdom was forbidden except within a radius of three miles of a recognised aerodrome.

The ensuing struggle for military supremacy resulted in the forced growth and abnormal development of aircraft. The creation of a weapon of war out of this new form of transport has caused civil aviation often to be regarded in an entirely wrong perspective, namely, as a potential instrument of destruction, instead of as a means of facilitating communications between nations with consequent benefit to the cause of world peace.

10. In May, 1917, a Civil Aerial Transport Committee, strong in numbers and talent, was appointed to report to the Air Board on the steps which should be taken with a view to the development and regulation after the war of aviation for civil purposes from a domestic, Imperial, and international standpoint; also on the extent to which it would be possible to utilise for this purpose the trained personnel and the aircraft which the conclusion of peace might leave surplus to military requirements. The report eventually presented to the Air Council in February, 1918, constituted a comprehensive and invaluable review of the possibilities of civil aviation and of the principles to be followed in its regulation. Evidence of their recommendations can readily be traced in the subsequent national and international regulations.

11. In an interim report the Committee had urged that no time should be lost by the Allies in formulating a scheme for the regulation of international flying which they foresaw would immediately follow the return to peace. As a basis for discussion they annotated the 1910 draft Convention. They also pointed to the necessity for domestic air legislation and reviewed the draft Home Office Bill of 1911. Their recommendations were followed up. Immediately after the Armistice representatives of the Allied Nations resumed in Paris the discussion of the control of international flying, and on 13th October, 1919, a Convention for the Regulation of Aerial Navigation was signed on behalf of 29 States. It was subsequently ratified by the majority of these States, and became effective on the 11th July, 1922. Under its terms an International Commission for Air Navigation, composed of representatives of each contracting State, was set up for the purpose of, *inter alia*, considering technical questions arising in the application of the Convention and generally of co-ordinating the operation of its provisions. As a party to the Convention this country is bound by its terms which, so far as its technical annexes are concerned, can be modified by a vote of the Commission, if passed by a certain majority.

12. While the question of international flying was being examined at the Peace Conference, the problem of the control of flying at home was being simultaneously considered, and on 12th February, 1919, it was announced in the House of Commons that the Government had decided to set up a Department of Civil Aviation under the Minister for Air. The Air Navigation Act, 1919, was passed on the 27th February, 1919, giving general power to regulate air navigation in the British Islands and extending the purposes of the Air Council to include all matters connected with air navigation. It supplemented the two previous Air Navigation Acts. Regulations under this Act were established on the 30th April, 1919, and the ban on civil aviation, which had existed for nearly five years, was removed.

13. The 1919 Act was temporary only. Together with previous Acts it was repealed on the 23rd December, 1920, by the Air Navigation Act, 1920, which enabled effect to be given to the Convention and made further provision for the control and regulation of aviation. This Act is still in force.

The Air Navigation Order, 1922, which was established under it on the 20th June, 1922, and became operative simultaneously with the Convention on 11th July, 1922, gave effect to the detailed requirements of the Convention. Its provisions were supplemented by the issue of Air Navigation Directions under the signature of the Secretary of State prescribing the conditions for the issue of the various certificates and licences, and dealing with other matters of too detailed a character to be included in the Order itself.

The general form and purpose of the 1922 Order have not been substantially varied in the Air Navigation (Consolidation) Order, 1923, by which it was replaced. That Order has itself been amended from time to time, very largely in consequence of modifications of the technical annexes of the Convention and in order to deal with developments which have arisen in the course of administration of the regulations.

In airworthiness matters the statutory regulations have been supplemented by the Airworthiness Handbook for Civil Aircraft, by Air Ministry Notices to Ground Engineers, and other official publications.

The investigation of accidents to aircraft has been regulated separately in the Air Navigation (Investigation of Accidents) Regulations, 1922 to 1930, made under Section 12 of the Act of 1920.

14. Statutory Orders in somewhat similar form have been issued for the Channel Isles and also for the Colonies, and in some cases these Orders have been supplemented by Directions.

15. Various other provisions, such as those relating to wreck and salvage of aircraft, and rules for international air carriage, have also been established since the War, but are foreign to our immediate problem.

III.—PRESENT CONTROL

16. The main reason for the control of civil aviation is the obligation of the State to safeguard the lives and property of people on the ground and to ensure the safety of passengers carried in public transport aircraft.

This obligation is recognised in the International Air Convention and in the bi-lateral air navigation agreements concluded between this country and certain States not parties to the Convention, all of which require, *inter alia*, that for international flying the operating personnel shall be certified as competent and the machine as airworthy.

This certification also serves a commercial purpose by affording insurers some basis on which to assess the risks which they cover in respect of injury or damage. If State control were withdrawn these insurers would be compelled to enforce alternative rules by means of the economic pressure of insurance rates in order to protect their interests.

17. It has been questioned whether the present system of control is not out of balance, and whether the safety of pilot, passenger and public cannot as well be ensured by other measures which will not confine design and construction within the strait jacket of the present procedure.

18. From the evidence which has been submitted to us (*see* Appendix "A") it is clear that by far the greater number of accidents result from causes which have little or nothing to do with the design, construction or condition of the aircraft or engine, but arise from errors of pilotage due to the demand for relatively high operational skill on the part of the pilot.

The Aerial Transport Committee in 1918 endorsed the view of their Special Committee that "for the purpose of ensuring safety for the ordinary population it is better to provide for the competency of pilots by stringent regulations rather than to run the risk of hampering the development of civil aeronautics by imposing on all aircraft onerous conditions as to tests and examination At the same time the Committee think it reasonable to require that passenger machines flying for hire must be of types the airworthiness of which has been officially certified Even in the case of types of aircraft requiring certificates of airworthiness the Committee feel that the regulations should be so drawn as not to hinder the development of design in the early days of civil aerial transport." Force is lent to these observations by the fact that the Committee could not then have envisaged the subsequent development of private flying and the light aeroplane in this Country.

19. Looking back we think it is a matter for regret that this advice was not more closely followed in the national and international regulations and that more flexibility was not allowed in the certificate of airworthiness requirements, so as to permit of greater freedom for development. The difficulty in revising national rules to keep pace with changing conditions has been increased by the attempt of the International Commission for Air Navigation to establish for international flying detailed standards both for this certificate of the aircraft and for the licences of the crew.

We feel that there is substance in the representations of the Society of British Aircraft Constructors and others that civil aviation has become entangled in an ever-growing system of involved and complicated requirements; that the control in design and construction is restrictive, increases the cost of the aircraft and retards commercial development; that the intricacy of the regulations increases the difficulties of new constructors and those distant from London and that, without the good relations which exist between Air Ministry officials and firms, aircraft construction in present conditions would be almost impossible.

In our view, the principles of aircraft design and construction can be considered to have reached the stage at which responsible firms can be relied upon to produce reasonably safe aircraft without the checks of the present procedure.

We are convinced that the system as a whole can now, without detriment to the safety of the community, be relaxed and advantage taken of the safeguards which insurance necessitates.

IV.—ADMINISTRATION

20. It has been urged in many quarters that the administration of civil aviation is too much subjected to military standards and procedure, and that its natural development is being cramped by its close association with a Fighting Service. It has seemed to us impossible to make recommendations in respect of the control of private flying and the other matters referred to us, without a consideration of the question, by whom control should be exercised. We have, therefore, felt compelled to examine whether, in fact, it is in the best interests of civil aviation in general and private flying in particular that it should continue to be administered by a Department whose primary functions are military.

21. This relationship of a civil activity to a Fighting Service is admittedly anomalous and it may be well to consider how it came about. As pointed out in Section II, the Home Office was the Department of State responsible before the War for the control of such civil flying as existed. In the Home Office draft Aerial Navigation Bill of 1911 it was, however, contemplated that the Board of Trade would relieve that Department of certain responsibilities in that connection ; but the Civil Aerial Transport Committee in 1918 proposed that all the powers and duties of regulating air transport should be assigned to the recently created Air Ministry, and their advice was followed. Military reasons, prompted by the circumstances of the time, influenced their recommendation, as will be seen from the following extract from their report :—" The proposal offers certain advantages in grouping in one Department officials and experts responsible for the issue and administration of regulations which in the present case must to a great extent be governed by Naval and Military considerations. As an illustration, it is only necessary to refer to the close connection between prescribed landing places for foreign aircraft and prohibited areas."

22. These reasons have lost their force to-day, and it cannot be denied that there would be political advantages in entrusting to a purely civil Department the encouragement and administration of a form of transport which, in spite of the progress made since the War, is still in its infancy. The question we have to consider is, do the technical and financial advantages of this association outweigh other considerations at present and are they likely to do so in the future ?

23. Civil aviation at its rebirth after the War found at its service the fully developed technical organisation created for the Royal Air Force and has undoubtedly derived considerable advantages in the past from its military associate and from the high standards required by it in aircraft construction.

No other Department of State could immediately undertake the task of administering civil aviation without the creation of a new branch and the transfer of technical personnel from the Air Ministry. At present this would result in mere duplication and would entail the loss to civil aviation of the technical experience which is gained from the large programme of research and development work for military purposes.

If under our later proposals the major portion of the airworthiness work for civil aircraft is devolved upon an unofficial organisation, it is clear that co-operation with official technical experts will be necessary for a time and that civil aviation must for the present continue to receive from the Air Ministry organisations the benefits of technical facilities and research.

24. For these reasons we think it will be in the best interests of civil aviation that the ultimate responsibility should, for the present, remain with the Air Ministry whose technical organisation will thus, subject to our later recommendations, continue to render common service to military and civil aviation.

25. We desire, however, to emphasise the point, to which in our opinion far too little attention has yet been paid, that civil aeroplanes are diverging from military machines in design and characteristics, and a purely civil technique in construction is arising. The day will arrive when civil air transport will have definitely assumed its place in the world as one of the main forms of communication, and we consider it of the highest national and international importance that the day should be hastened—or at least prepared for. As progress is made to that stage, the anomaly of a military body like the Air Council continuing to be responsible for its administration will become more and more pronounced. The position should, therefore, be carefully reviewed from time to time and certainly before the end of the next decade.

26. In the meantime it seems to us essential that the Civil Aviation Directorate should be made as self-contained as possible within the Air Ministry.

In this connection we desire to make a further comment. Civil aviation is the concern of the Air Council; of the four members other than Ministers, three are serving Royal Air Force officers. Since the re-organisation in 1922 the Director of Civil Aviation has not been a member of Council and is thus of inferior status to the officer responsible for advising on technical matters, with whom he will be in constant touch, and to the other military members with whom he will perhaps less frequently deal when civil and military interests are involved. Under this organisation civil aviation is, as we see it, labouring under a disadvantage in

the presentation of questions for decision to the Council or to the Secretary of State, particularly when civil and military views do not coincide, and this position has, in our view, hardly been met by charging the political Under Secretary of State with certain duties connected with civil aviation, or in giving the Director himself direct access to the Secretary of State in certain matters. We think that this position should be rectified.

Action along these lines will serve the purpose of removing to a great extent the cause for criticism that the administration of civil flying suffers from preponderating military influence and methods, and will also pave the way for the ultimate divorce which we regard as inevitable. Our recommendations with regard to devolution in airworthiness matters should, if adopted, go some way to facilitating the reorganisation which may be necessitated.

V.—CONTROL OF THE AIRCRAFT

(a) General

27. The obligation to possess a certificate of airworthiness when flying in this country or abroad is general for all civil aircraft with the exception of those being flown for experiment or test under certain prescribed conditions and those specially exempted by the Secretary of State. The certificate, which is normally valid for one year, vouches, according to the official evidence, that the aircraft complies with certain published requirements considered to be essential for airworthiness at the time that the type was approved, but it does not, and cannot, guarantee that the aircraft is completely safe.

28. We think that the necessity for the certificate from the point of view of the protection of persons and property on the ground can be discounted. It has been stated that 95 per cent. of aircraft accidents affect persons on board only, not those on the ground. While precise statistics on the point are not readily available, it can, we think, be definitely assumed that the interest in the certificate of airworthiness of persons other than those on board or concerned with the flight is relatively negligible and can be left out of account when considering the desirability or otherwise of its retention.

29. From the point of view of the recognised responsibility of the State to take adequate measures to safeguard passengers in vehicles allowed to ply for public transport, we consider that the certificate should, under the modified procedure suggested below, continue to be required for aircraft engaged in regular air transport, air taxi, joy-riding and training work.

(b) Devolution

30. There is a widespread demand on the part of owners, operators and constructors for the control of the airworthiness of civil aircraft to be devolved from the Air Ministry to an outside authority fully representative of all interests concerned. This demand is prompted by the desire for freedom from the inflexible administration of a Government Department. Rightly or wrongly, the feeling is general that enterprise in civil construction is being stifled under the existing regime and that an intimate knowledge of the involved airworthiness procedure and intricate regulations is coming to be regarded as more essential than ability in aeronautical engineering and original thought.

31. It has also been impressed on us in evidence that, if this country is to occupy a leading position in aviation insurance, comparable with that which it has attained with shipping, a

British classification and survey organisation capable of world-wide operation should be created for aviation without delay. As insurance is indispensable to the commercial operation of aircraft, survey and classification play an important part in the development of air transport.

32. It is possible to satisfy both of these demands by devolving wide responsibilities in regard to the certification and inspection of aircraft to an appropriate outside organisation fully representative of all interests. We believe that civil aviation will benefit if this course is followed.

33. We appreciate that within the last few years the Air Ministry has moved some way in this direction. Representatives of manufacturers and operators have been admitted to the Civil Airworthiness Committee which frames the detailed requirements for the issue of the certificate of airworthiness. Responsibility for the design and inspection of their own aircraft, subject only to check tests by technical officials posted at their works, has been devolved upon those constructors whose organisation and methods have been approved by the Department. Recommendations for the issue of certificates of airworthiness for "subsequent" aircraft of their own design and construction have been accepted from these firms. Inspection work in connection with the renewal by the Air Ministry of the certificates of airworthiness of private aircraft (the word "private" being liberally interpreted) has been entrusted to the Joint Aviation Advisory Committee of Lloyd's Register and the British Corporation Register.

34. Although these steps indicate that it is the general policy of the Air Council to devolve gradually its airworthiness work, we regard this limited devolution as inadequate and consider that the time has come to abandon a policy of half measures in this respect. If devolution is to achieve its purpose, it must be complete. We see no reason why it should not extend to the supervision of design and construction work of type aircraft. It is also clearly impracticable to limit it to aircraft for private use, seeing that, except for a few single-seater types, practically every aircraft is a potential public transport machine.

35. We consider that it would be desirable to combine in one registration, classification and survey organisation the duties of supervising airworthiness requirements at home and prosecuting aircraft survey and classification work abroad.

In view of the importance to the general public of the responsibilities to be entrusted to this body, we consider that it would be appropriate and desirable that its authority should be derived from the legislature rather than from an administrative decision of a Government Department.

36. We have given careful thought to the question of whether it would be better to create an entirely new body or to entrust the work to the Joint Aviation Advisory Committee. The latter was formed by amalgamation of competing registration societies and has an actual survey organisation in being. Its promoters have shown generous public spirit in maintaining its work in spite of continuous and heavy losses incurred since its formation. They have explained in evidence that they cannot continue to bear this loss and have put forward proposals for increased delegation of airworthiness work to them by the Air Ministry, which, according to their calculations, would enable them to be self-supporting in five years.

By taking the existing framework of the Joint Aviation Advisory Committee as a foundation for the organisation which we have in view, the great advantages of the high reputation and extensive foreign connection of Lloyd's Register and the British Corporation Register should accrue to it.

The claims of the Joint Aviation Advisory Committee are, therefore, on all grounds very strong to participate in the new scheme. We think, however, that it will be necessary to make certain basic changes in its organisation, so that, whilst still associated with the two Registration Societies, it may become autonomous and executive instead of advisory in its powers. It should be composed of appointed representatives of the manufacturers, operators and underwriters. Moreover, we are satisfied from the evidence that it would be calculated to make for more general acceptance of its services as a survey and classification body at home if it took a new title, and we suggest "The Air Registration Board" as suitable for the purpose.

37. This Air Registration Board would undertake the supervision of the design, construction and maintenance of civil aircraft, and would make recommendations to the Secretary of State for the issue and renewal of certificates of airworthiness, as required. The Secretary of State would retain the right to accept or reject these recommendations, and he would also reserve the power, as now, to suspend or cancel the certificate of any aircraft if and when he considered the circumstances justified that course.

38. The Board would act through an Executive Committee which would have the assistance of special Sub-Committees, standing or convened *ad hoc* as might be preferred, to deal with the various technical aspects of the subject.

The permanent staff would consist of the secretariat and a small staff of technical experts competent to deal with design and inspection of both aircraft and engines.

39. We have given very careful consideration to the question whether the Air Ministry should be represented on the Board and on its Executive Committee, and we have come to the conclusion

that, if devolution is to be real and the new Board autonomous and executive, as we think essential, the Air Ministry should not be so represented.

40. The Air Ministry would require that every recommendation by the Board for the issue of a certificate of airworthiness should include a statement that in its opinion the factors of safety of the aircraft were adequate for the particular category and that it would fulfil the requirements of minimum performance laid down by the Department. If, beyond requiring a broad statement of this character, any attempt were made by the Department to define detailed standards to which the aircraft should be built, such as those which have in the past been prescribed in the "Airworthiness Handbook for Civil Aircraft" (Air Publication 1208) and the "Handbook of Strength Calculations" (Air Publication 970), the whole purpose of devolution would be nullified and the scheme would lose the flexibility of control that is essential for its success.

Within these broad limits the Board would produce detailed requirements for the purpose of implementing the policy of the Air Ministry and would administer them through its permanent staff under the direction of its Executive Committee. It would also settle all questions of policy and interpretation.

(c) Suggested Procedure

41. A number of problems will inevitably arise in settling the details of the re-organisation of the airworthiness work in the manner which we have suggested. These should be relegated to the Board for decision, but it may assist if we indicate the general lines on which we think certain questions should be treated.

(i) The system of "approved firms" should be continued, the approving authority being the Board. Approved aircraft or engine constructors would, as now, be required to maintain an adequate design and inspection staff and to provide efficient checks on the accuracy of their work. The supervision of these firms would, however, be carried out, not by resident officers, but by check inspections from time to time by visiting officers of the Board. These firms would, both in the case of type and subsequent aircraft, render to the Board a certificate that the published requirements had been complied with.

In the case of non-approved firms a system of "approved aeronautical consultants" should be introduced. These consultants would check the design and methods of construction and certify to the Board that the completed aircraft had reached the prescribed standards in all respects. Spot checks by visiting inspectors would be paid to the works of these firms.

We do not consider that these proposals would, if adopted, detract from the value of the certificate of airworthiness or increase the risk of the general public. Apart from the influence of insurance rates, it would be to the interests of constructors themselves to maintain the present high standards, seeing that their responsibilities and consequent liabilities would be definitely increased. The advice of the technical departments of the Air Ministry would frequently be required in the early stages, and we assume that this would be readily accorded.

The Air Ministry research and experimental stations should be regarded as available to undertake work for the Board, and the resident technical officials at the works of approved firms should render assistance, if required.

(ii) The system of "approved firms" should be extended to the suppliers of aircraft material and to the manufacturers of instruments, the Board allowing these firms to assume the responsibility for their products as in the case of approved aircraft and engine constructors.

(iii) The responsibility for approving modifications to aircraft already certified should be entrusted to approved firms when aircraft of their own design and construction are concerned, and to approved consultants in the case of unapproved firms, subject in both cases to the same over-riding checks by the Board as for the original issue of the certificates of airworthiness.

(iv) The recommendations of the Board with regard to the renewal of the certificates of airworthiness would be based on the examination of the aircraft by approved inspectors. It should in many cases be possible to spread this inspection over the year, with a view to reducing the time during which the aircraft is laid up, certain of the larger components being dealt with in succession rather than at one complete inspection.

Where this is not possible, we think that reasonable extensions of the period of validity of the certificate should be granted, so as to enable the overhaul to be carried out at the most convenient period to the owner, unless the aircraft is in an obviously unsatisfactory condition.

(v) The regulations concerning the daily inspection certificate have given rise to considerable dissatisfaction. It is quite impossible for a ground engineer to carry out in each period of 24 hours, for the purposes of this certificate, a thorough examination of a large air liner. In these cases a certificate is, therefore, perfunctorily completed because the regulations require one, but the procedure is, for all practical purposes, a mere formality. All reputable operators must in their own interests adopt a rigorous system of inspection and maintenance, and a general supervision of their maintenance arrangements, coupled with occasional check inspections of their aircraft, should be sufficient.

The Air Ministry may require special regulations for regular air services with the object of ensuring that the general arrangements for the inspection and maintenance of the aircraft employed are adequate, and of enabling these services to be differentiated in this and other respects from public air transport not operated under such close supervision.

The case of aircraft used for joy-riding and short pleasure flights is different. Their station of operations frequently changes, the work is harder on the machines, and the facilities for maintenance are, in general, less satisfactory than with regular air services operating from fixed bases. We think that the daily certificate of safety for flight should be retained in their case.

We think that it will on the whole be desirable to retain the requirement at flying schools and clubs for aircraft when used for dual instruction or passenger flights on payment.

(vi) The daily inspection and certification of the aircraft devolves upon a ground engineer licensed by the Air Ministry for this and other duties under the airworthiness regulations. He is normally an employee of an aircraft operating or constructing concern, but his work is subject to supervision by the Aeronautical Inspection Directorate of the Air Ministry. This ground engineer system is peculiar to this country.

If the system of ground engineers is to be continued, we do not consider that it is necessary for them to be licensed by the Air Ministry for their duties in connection with aircraft, but we think that they should be approved by the Board. Under this approval the ground engineer should not be restricted, as he is at present, to work on specified types of aircraft or engines. In our view, competent engineers should have a sufficient general knowledge of all types of aircraft or engines, as the case may be, to become readily proficient in the particular type with which they may be concerned.

(d) Finance

42. In the proposed scheme for devolution we consider it an essential feature of the organisation that a Chief Surveyor of the highest technical qualifications should be appointed for the survey and classification of aircraft and its equipment, and a Chief Surveyor of equal calibre for engines. Their duties would be mainly concerned with the inspection of the technical organisation of constructors and operators in regard to design, manufacture and maintenance, in order to ensure that the requisite standard is maintained. It would be a mere duplication of work for the Board's technical staff to be so organised as merely to re-check the work already carried out by the firms concerned. These officers must be of such standing that their technical decisions would be accepted without question and could be enforced with authority by the Board.

43. The total expenditure of the Joint Aviation Advisory Committee in 1932/33 for the technical and clerical staff, administration and office expenses amounted to approximately £6,000, according to the evidence submitted to us. It is somewhat difficult to estimate the cost of the new technical staff required which must be of the high standard necessary for carrying out the duties mentioned in paragraph 42 above. We may estimate, however, that a cost of no less than £7,500 per annum in salaries and £2,000 in expenses would be incurred, making a total of £9,500, which, with the £6,000 now spent, would make a grand total of £15,500.

The receipts in the Air Ministry for the year 1932/33, as shown in Appendix "C", were approximately £7,800 for airworthiness work. Of this sum, £6,400 represented receipts for certificates of airworthiness for subsequent aircraft and renewals of certificates of airworthiness, both of which are the most lucrative form of this work and would accrue in full to the Board. The balance of £1,400 was in respect of certificates of airworthiness for type aircraft and for aircraft of modified type and of approval of modifications, work on which the Department recovered only some 15 per cent. of the cost. Under the revised arrangement it would not be reasonable to retain the type fees at their present level, seeing that in the case of approved firms the checks would be much less extensive than at present and with unapproved firms the responsibility would devolve on consultants. For estimate purposes not more than £600 should be allowed on account of this class of work, making a total of £7,000 for receipts.

If receipts continued on this scale, there would be a deficit to be met by the new authority of approximately £8,500 in the first year.

The total expenditure by the Air Ministry was £16,500 and its retainable receipts £6,400 (after deducting £2,130 handed over to the Joint Aviation Advisory Committee), resulting in a total deficit of approximately £10,000 to the Department in respect of certificates of airworthiness and ground engineers' licences.

44. Although we have not received definite evidence as to the actual sum which complete devolution would save to the Air Ministry, it should be a substantial amount which should warrant an annual grant sufficient to make good the anticipated deficit in the early years of the Board's work, and we strongly recommend that such a grant be made. This recommendation, it is obvious, involves no further financial burden on the State than at present.

It has been suggested that in lieu of a cash payment technical officials might be seconded. We are opposed to this course and feel that, so far as personnel is concerned, it would be preferable for the new authority to bear its own responsibility from the first.

45. It will obviously be necessary for the whole of the financial arrangements of this scheme to be reviewed after it has been in operation for some time and we suggest three years as a suitable period. In this connection we desire to record that, if a continuation of grants to the Board is then shown to be necessary, we advocate that they should be placed on a scale decreasing regularly over a period. This will tend to call forth efforts on the part of those concerned in the administration to make the Board self-supporting by the end of the term.*

46. We have not ignored the problem which the new arrangement will present to the unapproved firms who will have to defray in full the fees of an approved consultant. This means the loss to them of the very considerable concealed subsidy represented by the Air Ministry deficit on this class of type work. It would be a matter for concern if unapproved firms were thereby prevented from producing aircraft, and their inventive genius and aeronautical ability were consequently lost to the community. If undesirable consequences of this sort arise, we consider that some assistance to unapproved firms for a limited period would be justified. But we are proposing in Section VII below that considerably greater liberty should be afforded to the unapproved firms for experiment or test, and, if the qualities of a new aircraft are demonstrated by a series of successful experimental flights, it should not be difficult to obtain sufficient financial backing to meet the cost of the investigations necessary under the new certificate of airworthiness procedure.

* The Board will only become self-supporting when the fees levied balance expenditure. In this connection attention is called to the fact that in the United States of America the Department of Commerce bears the entire cost and levies no fees in connection with the issue and renewal of certificates of airworthiness.

VI.—INTERNATIONAL CONTROL

47. Under the terms of the International Air Convention, every aircraft engaged in international navigation must be provided with a certificate of airworthiness issued or rendered valid under certain conditions by the State whose nationality the aircraft possesses. These conditions stipulate that its design, construction, and flight trials must conform to minimum requirements to be fixed by the International Commission for Air Navigation. Until these requirements have been so fixed, each State is free to determine its own detailed regulations on the subject.

48. The International Commission for Air Navigation is now engaged upon the task of defining the international minimum standards, and, as various sections of the work are adopted, the Commission is communicating them to States with a request that they may be enforced as rapidly and as completely as possible.

Instead of confining itself to a statement of general principles in this matter, the Commission is attempting to prescribe a complete code of detailed regulations, which at best can only represent a compromise between the different methods and practice of the various States. This course seems to us unfortunate. Aircraft constructed in theory to the same requirements in different States will, in practice, vary widely in actual airworthiness, owing to differences between nations in mentality and in methods of design, inspection and maintenance.

49. We were assured in the official evidence that the international standards had not as yet imposed any burden on constructors here, and were unlikely to do so.

It seems to us, however, that the existence of detailed international requirements must cause some embarrassment to the Air Ministry in giving effect to our recommendations.

We understand that the United Kingdom representatives on the Commission have in the past steadfastly opposed the policy which has been adopted in this respect. We recommend that they should persevere in their efforts to secure treatment of this subject of international airworthiness standards on broad lines which will not handicap national policy.

50. Some of our witnesses have suggested that denunciation of the Convention should be considered, if a more liberal attitude does not prevail. While we could have wished that the functions of the Commission had been limited to purely navigation matters which would have afforded it ample scope, we should be reluctant to

suggest that this Country should take the step, involving political and practical disadvantages, of disassociating itself from a Convention which, although restrictive in some respects, has been of value in the regulation of international air navigation.

51. If a foreign aircraft is purchased and registered here by a British national it may not be flown unless a fresh certificate of airworthiness has been issued by the Air Ministry or the foreign certificate has been validated by the Department. This results from the provisions of the Convention, mentioned in the first sentence of paragraph 47, and the procedure is common to contracting States.

We have been informed that the present policy of the Air Ministry is to decline to issue new certificates to foreign-built aircraft, and only to validate foreign certificates of those States which have a standard of airworthiness substantially equal to that in force here. Under this policy a validation agreement has been concluded with Germany and an understanding reached with Holland, both on a reciprocal basis, and agreements are being negotiated with Belgium, Italy, and the United States of America.

52. We cannot help thinking that, in view of the wide renown of British aircraft, our industry would stand to gain by a policy which would on a reciprocal basis allow of the automatic validation of the certificates issued by any first-class manufacturing State having experience of aircraft construction. The British Aircraft Mark would distinguish those aircraft which possess Air Ministry certificates.

VII.—CONTROL OF PRIVATE AND EXPERIMENTAL AIRCRAFT

(a) *Private Aircraft*

53. The State cannot, in our view, accept responsibility for safeguarding the private pilot who chooses to fly for his own amusement, or even the professional pilot engaged in aerial work as understood in the regulations. We think that in the case of aircraft used for such purposes in this country possession of a certificate should be at the option of the owner or hirer, subject to the condition that a policy of third party insurance or an authorised alternative indemnity must be effected and maintained in force in respect of the aircraft in accordance with the scheme of compulsory insurance referred to later in Section XI.

As an administrative check that this condition has been fulfilled it will be necessary to call for the production of a certificate of insurance before issuing the registration certificate of the aircraft.

54. Private owners have pressed for this freedom. But, as an aircraft without a certificate will under present circumstances be unable to fly abroad, we do not ourselves look for an extensive demand for it at first, nor for immediate results in an appreciable reduction in the cost to purchasers, nor in a marked increase in the number of private owners. We do expect that these desirable consequences will flow in due course from the relaxation, and that possibly it may prove to be an incentive to the development of new types.

We see no reason why it should not be possible, when the concession has justified itself by results here, to obtain international recognition of the principle of freedom from the certificate of airworthiness for private flying.

(b) *Experimental Aircraft*

55. The regulations accord to "approved firms" liberty to fly, for the purpose of experiment or test, aircraft constructed by themselves or by other approved firms. The specific authority of the Air Ministry is, however, required before flights can be made with experimental aircraft produced by unapproved firms or private inventors.

This restriction has been the subject of strong criticism.

56. We consider that an inventor should be free to try out his experimental aircraft (by which we mean an aircraft still subject to engineering and aeronautical tests and not yet recognised as a type),

provided that in doing so he does not fly it to the common danger. Subject to this governing principle, we do not think that the Air Ministry is under any obligation to attempt to save the inventor from the dangers of his own experiments.

57. It is obvious, however, that an experimental aircraft cannot be given unrestricted freedom for flight, because of the risks to which it gives rise to persons or property on the ground, risks which would not be entirely compensated for in such a case by third party insurance.

It should, therefore, be a stipulation with an experimental aircraft that no part of its flight shall take place over any populous area or concourse of people or aerodrome where at the time conditions make experimental flying dangerous. An experimental aircraft should be allowed to fly over open country, provided it bears identification marks, but in all cases it should be insured against third party risks under the conditions recommended in Section XI. The marks would be allotted by the Air Ministry on the production of a certificate of insurance conforming with the specified conditions.

VIII.—CONTROL OF THE PILOT

58. It is clear that errors of pilotage are the most fruitful cause of accidents at the present time. Whilst, therefore, it does not devolve upon the State to safeguard the pilot himself, it has an obvious duty to minimise the risks to the general public from aviation by insisting that every person flying an aircraft shall be a competent pilot. The duties of determining and administering the regulations for this purpose are, in our view, proper to a Government Department.

(a) *Private Pilot's ("A") Licence*

59. The standard of proficiency and experience required for the issue of a Private Pilot's ("A") Licence is certainly the bare minimum from the safety standpoint. On general grounds, however, we do not advocate that the requirements for the licence should be stiffened up.

60. The question of sub-dividing the "A" licence into one or more additional categories was, we understand, recently referred by the Director of Civil Aviation to the chief organisations representative of private flying and also to the Guild of Air Pilots and to Insurance interests. It was found that opinion was strongly in favour of the present conditions being retained. We share that view.

61. Under our terms of reference we were asked to advise whether the holder of an "A" licence should be free, as now, to fly an aircraft carrying non-fare-paying passengers without an official endorsement of his licence authorising him to do so. This endorsement, if required, would presumably only be given on the production of evidence of greater competency and more flying experience than is now required for the issue of the "A" licence itself.

In evidence we have been confronted with a wide divergence of opinion on this point. For practical purposes the question only arises with the private owner-pilot, for the reason that at flying clubs and schools the rule seems to be almost universal to prohibit the carrying of passengers in club or school machines by "A" pilots unless and until they have had a reasonable amount of flying experience, and have been approved for the purpose by the instructor.

We are opposed, in principle, to increasing the restrictions on private flying and on what the owner may do with his own machine. We do not, therefore, favour a change in the present position, so far as this question is concerned.

62. Following on a recent decision of the International Commission for Air Navigation with regard to the medical requirements for the renewal of private pilots' licences valid for international

flying, a new regulation has been introduced requiring a medical certificate to be produced by the applicant for the renewal of an "A" licence.

Private pilots and bodies representing their interests have expressed considerable dissatisfaction with the imposition of this additional requirement, and it has been represented that the expense involved will in many cases be the "last straw" and prevent a number of pilots from renewing their licences.

We do not regard it as unreasonable to require evidence of the fitness of a pilot who desires to renew his licence, and we understand that the practice is general abroad. The change does not, however, seem to have been necessitated for any particular reason, as we have not been able to obtain evidence of an outcrop of accidents caused by the physical unfitness of pilots.

We think that the arrangements for obtaining this evidence of physical fitness should be administratively simplified to the greatest extent possible which will satisfy international regulations, and that the United Kingdom representative on the Commission should renew his efforts to secure a relaxation of the requirements and the acceptance of the pilot's own certificate.

There must be a large class of private pilots who do not desire to fly abroad, and in their case we do not see why the provisions of the Convention in this respect should be applied.

(b) Public Transport and Aerial Work Pilot's ("B") Licence

63. In the course of our enquiry we have received evidence concerning certain of the requirements for the issue of "B" Pilots' Licences. Whilst this question does not fall strictly within our terms of reference, it is, nevertheless, closely related to them, and we, therefore, offer our observations on those points which seem to us to call for attention.

64. The question of the application of the rigid medical requirements to pilots who are getting on in years, but are of ripe experience and proved ability, needs serious consideration. The rejection of such pilots because they eventually fall slightly below the very high standard of physical efficiency which they once reached, would not be in the best interests of civil aviation, and special recognition of this class seems to be called for in the regulations. These pilots will frequently be entrusted with the command of large air liners, on board which they will have the assistance of younger co-pilots.

65. We understand that a "blind flying" test is about to be incorporated in the requirements for the issue of the "B" licence, and consider that this is desirable. But we think that the night flying requirements need reconsideration.

For a pilot who is to engage in commercial flying by night the ordinary night flying tests are inadequate. Special night flying qualifications should, we think, be required in such a case, and the licences of pilots who do not meet these requirements should be restricted to daylight flying.

66. It has been brought to our notice that licences issued by one member of the British Commonwealth are not valid for flying aircraft registered by another member, and that a licence issued by the latter must be held by the pilot. Thus, a pilot holding an Air Ministry licence must obtain an Indian licence before being allowed to fly an Indian registered aircraft; and the reverse also obtains. This results from the fact that the United Kingdom and five of the Dominions and India are separate States for the purposes of the International Air Convention, and under its provisions the pilot of an aircraft is required to hold a licence issued by the State, the nationality of which the aircraft possesses. There are also divergencies in the individual requirements of the various British Governments for the issue of the licences.

We think it would be an advantage if a licence issued by one member of the Commonwealth were valid for flying aircraft registered in any part of the Empire, and recommend that the possibility of arranging for this should be explored. It should not be impossible to standardise within the Empire the various tests required for the licence, seeing that on the much more difficult question of an Empire standard of airworthiness agreement has been reached. We do not see why the provisions of the International Air Convention should necessarily regulate the conditions of flying within the Empire.

67. A pilot may not now give instruction in flying unless he is authorised by the Secretary of State to do so by endorsement on his licence. We consider that this restriction should be limited to instruction for which payment is received. It does not, for instance, seem reasonable to preclude a private owner in his own machine from being given without fee lessons by an experienced pilot who may not be an authorised instructor. Breaches of this regulation, as it stands, are, moreover, practically impossible to detect or prevent.

IX.—DOCUMENTS AND OTHER MATTERS

(a) *Documents to be kept*

68. The documents to be kept at present in respect of an aircraft and its crew are as follows :—

- (i) Certificate of registration.
- (ii) Certificate of airworthiness.
- (iii) Journey log book.
- (iv) Aircraft log book.
- (v) Engine log book (one for each engine).
- (vi) Licences of the personnel.
- (vii) Pilot's log book.

If our recommendations on the subject are adopted, there will also be an additional item :—

- (viii) Certificate of third party insurance.

The aircraft and engine log books are not obligatory for an aircraft used for private flying, but they are in general use as a record of repairs and modifications effected, and of the relevant certificates of the ground engineer.

69. So far as regular air services are concerned, the whole log book system (Items (iii) to (v)) needs to be completely revised in order to fit it in with the efficient organisation of operations conducted from regular bases.

For other air operations these log book requirements appear satisfactory, except that the journey log book could, in our view, be dispensed with for flights in this country. It is required for flying abroad, but it should be modified considerably. In size it is inconveniently large, and the left-hand page containing navigational and signal particulars is, in practice, never used.

While the pilot's log book is a convenient form in which a pilot can maintain a record of his flying, we do not think that it should be compulsory to keep this log book.

(b) *Documents to be carried*

70. For international flying the documents referred to in Items (i) to (iii) and (vi) above must be carried in the aircraft, together with certain customs forms with which we are not immediately concerned. For home flying we think it should, in the case of private aircraft, be sufficient to carry only the certificate of third party insurance, and to produce the other documents within five days, if they are demanded.

The certificate of airworthiness, the certificate of third party insurance and the licences of the crew should be carried on board aircraft operated for hire and reward.

(c) *Penalties under the Order*

71. If any person contravenes or fails to comply with any of the air navigation regulations, he is on summary conviction liable to imprisonment for a term not exceeding six months, or to a fine not exceeding £200, or to both such imprisonment and fine.

It does not seem to us equitable that a person should be liable to the same penalty for failing to carry his pilot's licence as (*e.g.*) for being drunk when flying a passenger aircraft, or for committing an act of sabotage in regard to it. We recommend that provision should be made for a graduated scale of penalties for different classes of offences.

(d) *Authority for aerodrome officers*

72. It has been represented to us that those in control of aerodromes open to public use are not in a position to prevent the flight of aircraft in a manner or in circumstances which constitute a breach of the air navigation regulations and a danger to the public, and that occasions sometimes arise when it would be to the benefit of the community if they possessed powers which would enable them to intervene. We understand that it is the practice to confer such powers on nominees of the Royal Aero Club on the occasion of race meetings, in order to enable them to safeguard the public.

We think that for the most part it would on general grounds be open to strong objection to invest persons with statutory powers who do not at the same time incur definite responsibilities for the manner in which they exercise them ; but at an aerodrome open to public use, where air traffic is sufficient to warrant it, authority might be conferred by the Secretary of State upon some approved person to enable him to take such steps as are necessary to prevent flights which contravene the regulations and are a cause of danger to persons on the ground or in the air.

X.—ACCIDENTS

73. Accidents to aircraft are notifiable if they involve death or personal injury to any person, or serious structural damage to the aircraft, or are believed to have been caused or contributed to by failure in the air of any part of the aircraft. When the accident occurs in this country and involves serious structural damage, the aircraft may not without the authority of the Secretary of State, except as may be necessary for saving life or property, be removed or interfered with for three days after the accident has been notified, or for any longer period which he may in a particular case direct.

We have received evidence that the regulations, as they stand, may involve serious inconvenience to private flying from the fact that, even in the case of a simple (but notifiable) accident not involving injury to anyone, the authority of the Air Ministry must be obtained before the aircraft can be removed, and delay may arise in the permission being given. The definition of "serious structural damage" is, moreover, so wide as to result in the unsatisfactory position that the regulations concerning the notification of accidents are more honoured in the breach than in the observance.

74. The underlying reason for the investigation of accidents is to derive from them information calculated to promote the safety of the public and the development of aeronautics. It is possible that information useful to this end has in the past been obtained from the enquiries concerning private aircraft, but we think that the time has now come when they can be discontinued except in those cases where the public interest would really be served by holding them.

We understand that in the case of fatal accidents coroners are to-day looking more and more to the Inspector of Accidents for technical help at inquests. On the assumption that the Department considers it appropriate thus to provide coroners with an official assessor, we think it would be desirable that the investigation of all accidents to private aircraft involving death or serious injury to any person should be continued, although this is to justify the enquiries on different grounds from those on which they were conceived.

We consider that it should not normally be necessary in other circumstances for accidents to such aircraft either to be notified or investigated. The power should, however, be retained to conduct an official enquiry into any case of serious accident to a private aircraft if it is thought necessary in the public interest to do so. We contemplate that this necessity should seldom arise.

75. We understand that the report of the Inspector of Accidents is presented to the Secretary of State and copies circulated within the Ministry for such action as may be necessary with regard to the

aircraft or the pilot. The conclusions of the Inspector of Accidents are published in the case of all accidents affecting public transport, and in the case of those in which there are features of special interest from the standpoint of practical flying or aircraft construction. In other cases his conclusions are supplied to any interested parties. Privilege is claimed for the actual reports, which are not made available outside official circles.

We are not satisfied that under this procedure civil aviation derives the full benefit of the information gained from the enquiry. We appreciate that often, owing to the circumstances of the case and in contrast with accidents which occur to surface transport vehicles, the evidence consists at most of reasonable deductions, and the conclusions are consequently based on conjecture. Nevertheless, we think that the owner and constructor of the aircraft should, on request, have the right to be furnished, in confidence and without prejudice, with a copy of the whole report, so that they may be in a position to study all the relevant material on which the Inspector of Accidents has based his conclusions. The advantages to be gained from this change in procedure will, in our view, outweigh the disadvantage to the Department of any loss of privilege which may result so far as the report itself is concerned.

74. The underlying reason for the investigation of accidents is to derive from them information calculated to promote the safety of the public and the development of aviation. It is possible that information useful to this end has in the past been obtained from the enquiries concerning private aircraft, but we think that the time has now come when they can be described except in those cases where the public interest would really be served by keeping them.

We understand that in the case of fatal accidents enquiries are today looking more and more to the Inspector of Accidents for technical help and reports. On the assumption that the Department considers it appropriate that to provide companies with an official account, we think it would be desirable that the investigation of all accidents to private aircraft involving death or serious injury to any person should be continued, although this is exactly the enquiries on which much has been done in which they were considered.

We consider that it should not normally be necessary in other circumstances for accidents to such aircraft either to be notified or investigated. The system should, however, be retained to control an official enquiry into any case of serious accident to a private aircraft if it is thought necessary in the public interest to do so. We contemplate that this necessity should seldom arise.

75. We understand that the report of the Inspector of Accidents is presented to the Secretary of State and copies circulated within the Ministry for such action as may be necessary with regard to the

XI.—COMPULSORY THIRD PARTY INSURANCE

76. The question before us under this heading is whether it is desirable and practicable to establish a system of compulsory insurance against liability for damage caused by civil aircraft to persons or property on the ground. We exclude from our purview, as involving quite different considerations, the question of insurance against damage caused to aircraft in flight or to persons or property on board them.

77. Liability for surface damage caused by aircraft is at present governed by Section 9 of the Air Navigation Act, 1920. This Section, a copy of which is attached (Appendix "D"), while exempting aircraft from action for trespass or nuisance by reason only of flight in compliance with the regulations over any property at a reasonable height above the ground, imposes, subject only to the defence of contributory negligence, absolute liability for material damage or loss caused to any person or property on land or water by aircraft in flight, taking off or landing, or by persons in them or by articles falling from them. This liability falls on the owner of the aircraft, but is in certain circumstances transferred to the hirer; and the owner or hirer, as the case may be, is entitled to recover from a person whose wrongful or negligent action caused the damage, and may join him as a defendant in the proceedings.

Aircraft have thus been freed conditionally from actions for trespass or nuisance, but have been subjected to absolute liability, irrespective of negligence, for any material damage which they may do.

78. In the case of motor vehicles, it has been made compulsory under the Road Traffic Act, 1930, for a policy of insurance, or specified alternative security, to be taken out for the protection of the third party. This scheme does not, however, afford a complete precedent. In the case of motor vehicles the liability is in respect of the death or bodily injury of the third party and does not extend to damage to property. The liability is, moreover, based on negligence, whereas aircraft liability is necessarily irrespective of any but contributory negligence. The introduction of the measure seems to have been necessitated largely by the frequency of motor accidents involving grievous injuries to pedestrians and by the fact that the injured party was often unable to obtain the compensation which the Courts might award him, particularly in the case of motor-cycle accidents, owing to the driver not being a person of substance.

In the case of aircraft, the desirability of compulsory insurance cannot be based on the frequency of accidents involving serious third party damage. Such statistics as are available show that only

roughly 5 per cent. of aircraft accidents cause personal injury to persons not on board, as opposed to 75 per cent. in the case of railways, and 69 per cent. in the case of all road accidents. The general risk is thus relatively slight, but occasionally an aircraft accident may be catastrophic. Normally, the owner of an aircraft will be a person of some substance, and there is, therefore, a reasonable prospect of compensation being obtainable for damage which he may do, except in a catastrophic case. Moreover, 95 per cent. of aircraft owners are already voluntarily insured against third party risks for varying sums.

79. No one can, however, for one moment dispute the equitability of the right of the third party on the ground to be compensated in the event of damage being caused to him or his property by aircraft, seeing that he is powerless to avoid the risk which arises.

We have first to consider, therefore, whether it is to his interest that this compensation should be secured by compelling the aircraft owner to insure against his liability. The amount of this liability is unlimited at present. A scheme of compulsory insurance for an unlimited amount would be quite impracticable on the score of the prohibitive cost to the person insuring. Any compulsory scheme for aircraft postulates that the insurance shall be for a limited amount. The question is, therefore, narrowed down to the point whether it would be to the advantage of the third party to forgo his present right to unlimited but unsecured damages in favour of limited compensation secured by insurance. In a catastrophic case, as mentioned above, it is unlikely that he would in either event be able to obtain full compensation.

We think it would definitely be to the interest of the third party to have the certainty of recovering a reasonable sum.

80. Looking at the question from the standpoint of the aircraft owner, it is obviously an advantage to him to have his liability limited, provided that he does not have to pay excessively for the privilege. Owing to the smallness of the risk the prevailing rates for third party insurance for aircraft seem, from the evidence given to us, reasonably low.

Almost all the aircraft owners and operators from whom we took evidence were in favour of the introduction of a compulsory scheme under certain safeguards to ensure its equitable operation. Insurance interests were opposed, in principle, to compulsion and considered that insurance should only be regarded as one alternative method of covering the legal liability of the owner to provide compensation. They were, however, quite definite that adequate insurance facilities would be available so long as the regulations secured that aircraft were reasonably safe, that the risks consequently continued to be small, and that reasonable conditions were allowed in the insurance policies.

81. After careful consideration we have arrived at the conclusion that it would be in the general interests of the community to introduce a scheme of compulsory third party insurance, or adequate alternative indemnity, against the damage caused by civil aircraft to persons or property on the ground, provided that the liability is limited as proposed in paragraph 84.

82. Before making suggestions with regard to the details of such a scheme, it will be convenient to consider the international position of the question.

An International Convention, dealing both with the question of liability for surface damage caused by aircraft and also with compulsory insurance, was signed at Rome in May last. A brief statement, furnished to us by the Air Ministry, containing information with regard to this Convention and summarising its main provisions, is attached as Appendix "E". His Majesty's Government have not yet taken a decision to ratify this Convention, pending consideration by the Air Ministry of the views of other Government departments and various interested parties. The Convention recognises the general principle embodied in the Air Navigation Act, 1920, of absolute liability, apart from contributory negligence, for damage arising from aircraft, but it provides for a conditional limitation of this liability by compulsory insurance or alternative forms of security at the option of each State. The lower and upper limits are fixed at 600,000 French francs and 2,000,000 French francs respectively, or, at the present rate of exchange*, roughly, £7,700 and £25,650 respectively. This liability is placed on the operator, with special provision for unlawful user of the aircraft, and in this respect differs from the Act which imposes it on the owner or hirer. The Convention would only apply to foreign aircraft flying here and to United Kingdom aircraft flying abroad, although its provisions could be extended to flying at home by the latter, and it might be difficult to argue that they should not, if the reasons for ratifying the Convention are valid.

83. For some time past third party insurance for aircraft has been compulsory in Germany and appears to have operated satisfactorily. Registration there of an aircraft is only effected if the contract of insurance is found to be in order. Although the procedure is strictly enforced, it is understood that cases occur in which compensation is unobtainable under it because of the violation by the aircraft of the conditions of the insurance policy. The experience of the operation of insurance under the Road Traffic Act, 1930, is similar in this respect and goes to show that it is possible, even with well thought-out schemes, for insurance to fail as an absolute protection of the third party.

* Approximately, 78 francs = £1.

84. Turning now to the details of a possible scheme for this country, we do not recommend a change in the provisions of the Air Navigation Act, 1920, with regard to the onus of liability for third party damage. In general, the owner or hirer of the aircraft will be the operator, and there will thus be little practical difference between the Act and the Rome Convention on this point.

We consider, from the evidence which we have taken, that the lower limit of 600,000 francs (£7,700) proposed in the Convention is too high. In order that premiums may not constitute an undue burden on private flying in this country, the lower and upper limits should not exceed £5,000 and £25,000 respectively. Graduation of the liability on the basis of the authorised maximum total weight of the aircraft, as shown in its certificate of airworthiness, seems satisfactory for heavier-than-air machines, but we suggest that it would be found more convenient if the scale progressed by units of £100 for each 100 lb. of weight. Thus a policy for £5,000 would have to be effected in respect of aircraft up to an authorised maximum total weight of 5,000 lb. and a policy for £25,000 in the case of an aircraft of 25,000 lb. The basis of authorised maximum total weight will, of course, be unsuitable for lighter-than-air aircraft. The lower limit should, we suggest, apply to balloons, fixed or free. For airships, graduation according to cubic capacity would be desirable, but we leave it to Departmental experts to propose a definite scale for them.

We see no reason to allocate the compensation as between damage to persons and property.

85. Third party insurance to be satisfactory from the public standpoint must be both comprehensive and complete. It must give the third party protection irrespective of the omissions or misrepresentations of any individual or the financial shortcomings of the insurer. Briefly, the policy of insurance must be incontestable and indisputable on any grounds, so far as repudiation might affect an injured third party. Heavy penalties should be imposed for breach of the requirements to insure or to provide the stipulated alternative indemnity.

86. A claim under any policy would fail if the person insuring was not legally liable for the damage done. There seems no escape from this position, but under the ordinary principles of common law, even if the person insuring were legally liable when the damage occurred, the claim would fail in the event of his death in the interval between the accident and the settlement of the claim.

In view of the fact that a bad aircraft accident, attended by considerable damage, may involve the death of the pilot, this principle of common law would practically render nugatory the protection intended by the scheme. Special provision against this will be essential.

In the case of motor vehicles, it has not been found possible to deal with accidents arising out of the use of a stolen vehicle or one being driven without the consent of the owner. Cases of this sort should be most infrequent with aircraft, but it will be worth examining whether a remedy could not be found.

87. As an alternative to insurance, the Rome Convention envisages a deposit of security made with a State institution, or with an authorised bank, or else a guarantee given by an authorised bank.

Under the Road Traffic Act, 1930, the alternatives are—

(a) A deposit of £15,000 with the Supreme Court to cover the liability of the owner of the vehicle or his servant ; or

(b) A security in the shape of an undertaking by an authorised insurer or a body of persons who have deposited £15,000 with the Supreme Court to make good any failure by the person named in the security to discharge any of the liabilities against which the Act requires him to be covered.

We think it will probably be desirable to assimilate the aircraft insurance scheme as closely as possible to that for motor vehicles, but, in view of the bigger claims which may arise with aircraft, the deposit with the Supreme Court should not be less than £25,000.

XII.—CONTROL OF GLIDING

88. The present position with regard to the control of gliding in this country is admittedly anomalous. Gliders come within the legal definition of aircraft, and are, therefore, subject to the ordinary code of air regulations, including the provisions concerning registration, airworthiness and pilots' licences. Administratively, however, they have, except for the investigation of fatal accidents, been ignored. The explanation of this attitude on the part of the Air Ministry is that gliding has been regarded as a form of sport conducted chiefly in and over open country, and it has been considered that to apply to it the strict control exercised over flying in power-driven aircraft would not only have been unnecessary, but would probably have had a repressive effect on the development of the movement.

It has, therefore, been left to the British Gliding Association to impose of its own volition such control as has been exercised. This Association has framed rules, regulations and recommendations relating to motorless flight; it has made technical provision for the issue and renewal of certificates of airworthiness for gliders, and has investigated serious accidents. It has endeavoured to ensure that every club, group or person using gliders shall conform to these requirements. It has also, as the agent of the Royal Aero Club, conducted the tests for the issue of glider pilots' certificates.

89. The question before us is whether the time has now arrived to supersede the present arrangements under which a large section of the gliding community voluntarily submit to the regulations of the British Gliding Association, and to enforce by regulation formal requirements on all gliders and their pilots. Point is given to this question by the practice which is growing up of towing gliders by aeroplanes and of flying gliders for hire and reward. These practices introduce fresh considerations.

We have taken evidence from the British Gliding Association and other gliding interests. While this evidence was not entirely conclusive on the subject of control, it confirmed our impression that gliding should in the main continue to be regarded as a sport.

90. So far as private gliding is concerned (and we include in this term the flight of club gliders by members on payment), we have reached the conclusion that there is no justification at present for imposing formal requirements concerning either the safety of the machine or the proficiency of the pilot. As in other forms of sport, it will be preferable to leave matters to be regulated entirely by the gliding interests themselves on the present voluntary basis.

91. The position is, however, quite different with regard to towed gliders. Their radius of operation extends for considerable distances; they are frequently towed from aerodromes used by ordinary aircraft, and often figure at public displays in flight over large concourses of people. We think that a certificate of airworthiness should be compulsory in their case, and that their pilots should possess appropriate certificates and licences. The certificates of airworthiness should be issued by the Air Ministry on the recommendation of the Air Registration Board. The licences for the pilots should also be issued by the Department on the production of appropriate certificates of proficiency from the Royal Aero Club or other proofs of competency which may be decided upon.

92. It seems to us that the arguments which require the State to ensure the safety of passengers in other forms of public transport aircraft apply equally to the carriage of fare-paying passengers in gliders. We think that certificates of airworthiness and licences should be required respectively for the gliders used for this purpose and for the pilots flying them, and should be issued in the same manner as we suggest for towed gliders.

93. Our remarks with regard to the investigation of accidents to power-driven aircraft apply equally in the case of gliders.

94. We consider that the position of gliders should be definitely regularised by suitable amendment of the Order and the present anomaly in this respect removed.

95. We are of opinion that gliders should be included in the operation of any scheme of compulsory third party insurance, but in their case it would be appropriate to fix a scale between lower limits than those suggested in paragraph 84.

96. Gliding interests have advanced claims for the movement to receive financial assistance from the State, and have suggested that this assistance should be directed to the provision of a site for high efficiency soaring, a central school and a research station for gliding.

While admitting the services which gliding is able to render to aeronautical and meteorological research, we are not convinced that expenditure from public funds in the directions suggested, for the advancement of what we regard as a form of sport, would be justified, nor, indeed, do we consider that any State assistance of the body controlling it would be warranted.

If, however, Air Ministry experts are satisfied that proficiency in gliding is of definite value as preparatory training for pilotage of a power-driven aeroplane, it would, in our view, be reasonable for the Department to grant subsidies in respect of gliding certificates on the lines of the present subsidy scheme for light aeroplane clubs. We should expect practical benefits in increased membership and gliding activity to accrue from assistance of this kind.

XIII.—CONTROL OF SUNDAY FLYING

97. As might be supposed, the views which we have received from religious bodies on the subject of the control of Sunday flying do not coincide with those which have been laid before us by air interests.

To the extreme Sabbatarian flying of any description on a Sunday is an unnecessary secular innovation ; but the gravamen of religious bodies generally concerning Sunday flying relates to the interference caused to Divine worship and the commercialising of the Sabbath.

Although some witnesses were less tolerant on the subject than others, we found in general that religious interests do not press their objections to private or club flying on Sundays which does not cause interruption to Church services, nor to regular air transport, which they would, however, wish to reduce to the absolute minimum necessary for the convenience of the public. They oppose joy-riding on Sundays ; but, above all, they object to public air displays and pageants, whether viewed as public entertainments or as organised sport. The feeling of annoyance and protest engendered in religious circles by these displays is strong throughout the country.

98. From the standpoint of flying clubs it is argued that the airmindedness of the country depends on club members and private owners being free to fly on Sunday. Restrictions on their air activities on this day would retard progress ; prohibition would kill private flying. Air rallies and other air entertainments are occasionally arranged by clubs on Sundays for the purpose of recruiting new members, but these functions are confined to members and their friends. A certain amount of joy-riding is also done by clubs on Sundays, but every effort is made in all their activities to avoid disturbance of Church services.

We understand that the Royal Aero Club uses every endeavour to avoid holding air races on Sundays, but occasionally circumstances render avoidance of that day inconvenient.

Air transport concerns, who conduct short pleasure flights on Sundays, represent that there is no difference between their flying and that undertaken by clubs ; in some cases the companies actually suspend flying operations during hours of morning and evening worship. They contend that joy-riding spreads airmindedness, and that Sunday is the only day on which many people have the leisure to spare for flying. The amount of Sunday employment necessitated by their work is so small as to be negligible.

The companies who specialise in touring air displays stress their educational aspect and their value in popularising aviation. They claim that certain municipal aerodromes have been provided as the

direct consequence of their visits. They maintain that the displays constitute a clean entertainment, consisting of an instructive exhibition of flying conducted in an orderly manner and generally over open fields. While the joy-riding on these occasions possibly covers a ten-mile circuit, display flying is practically confined to the precincts of the aerodrome. Towns are avoided which are known to object strongly to Sunday flying, but some municipalities, where there is an industrial population, request that the visits shall be made on Sundays. The displays must be commercially self-supporting. The revenue is derived mainly from gate money and joy-riding, and without the display to attract spectators there would be very little joy-riding done. As the margin of profit on these undertakings is small and hazardous, it would be commercially impracticable to organise the displays at all if they were prohibited on Sundays, seeing that approximately 25 per cent. of the total revenue is taken on these days.

99. Apart from these conflicting views there is, undoubtedly, among many citizens, who have no particular bias on this question, a strong substratum of feeling against flying which disturbs the peaceful enjoyment of the Sabbath. The extent of this feeling it is difficult to judge, but it certainly prevails to a very great extent in a large part of Scotland and Wales.

100. We are satisfied that the Air Ministry has consistently endeavoured to secure that all pilots shall have the utmost regard for Church services and other local amenities, and has on receipt of complaints invariably made representations to those who have offended in this respect.

101. It seems to us that, apart from the question whether such a course would not be legally *ultra vires*, it would be quite inappropriate to attempt to impose special restrictions on Sunday flying in exercise of powers under the Air Navigation Act, 1920, which are intended for the general regulation of flying. Provisions for this purpose would constitute Sunday observance, and not aviation, measures. We think that such action as is desirable must be taken under the ordinances governing activities on Sundays or under special legislation.

102. It should be borne in mind that motor coaches and other vehicles interfere seriously with the Sunday peace and amenities of many districts. There can, in our view, be no question of imposing discriminatory legislation as between air transport and other forms of transport on Sundays, and we use the term "air transport" in this connection as connoting private flying, regular air services and air-taxi flights.

We consider that it would not be in the public interest to restrict the training carried out by flying schools and clubs on Sunday, seeing that this is for many people the day which offers the best opportunities to engage in aviation. We see no reason to curtail the joy-riding or the occasional air exhibitions which clubs or schools arrange, provided the public are not admitted to them on payment.

The joy-riding, undertaken by a commercial organisation which operates from the same base for a considerable period, closely resembles the flying carried out by a club or a school, and the management will have taken all possible steps in the interests of the concern itself to avoid offending religious scruples in the neighbourhood. The joy-riding of a perambulating company which changes its base frequently is likely to cause more annoyance, and is, therefore, more open to objection; but in neither case do we think that interference with their activities would be justified, provided that they are conducted with reasonable regard to local amenities.

103. It seems to us that commercial air displays and pageants on a Sunday must be regarded in an entirely different light from other air operations. We do not dispute that they may well have served a definitely useful purpose in spreading airmindedness, but to our mind they are first and foremost an entertainment; as such there is, in our view, no reason why they should be differentiated from any other public entertainment held in the open air, and any such legislation or local regulations as affect the holding of the latter on Sundays should apply equally to them.

104. Under the general safety provisions of the Order low flying which causes unnecessary danger to persons or property is an offence. Prosecution for infringement of this regulation should deter low flying at any time. But apart from this deterrent, we think that all pilots engaging in air activities on Sunday should scrupulously avoid flying in the vicinity of churches, and, where this is impracticable, should only fly over them at such altitudes as will not cause any disturbance of Divine worship.

While the Air Ministry must primarily be influenced by air considerations in connection with the issue or renewal of an aerodrome licence, we consider that the Department should, particularly in respect of a site to be used for joy-riding, have regard to any substantial objections lodged by local authorities against the issue or renewal of the licence, provided that the objections are not founded solely on religious grounds but are based on serious interference with other definite amenities of importance to the neighbourhood.

105. Although the question is not peculiar to Sunday flying, it will not be inappropriate to mention at this point that we invited the Central Council for the Care of Churches to remark on the possible risk arising from aviation to churches and buildings of sacred and historic interest.

The Central Council, while expressing their appreciation of the way in which the Air Ministry had followed up specific representations which had been made regarding certain cases of dangerous flying near Cathedrals, suggested that Church authorities would welcome any action which would help to impress on airmen the need for caution when in the neighbourhood of ancient and valuable buildings.

We are unaware of a case of damage having yet occurred to an historic building from this cause, and think that in the interests of his own self-preservation a pilot would naturally avoid such an obstacle. Low and dangerous flying is prohibited by the general safety provisions of the Order, referred to earlier. In addition, we understand that the Ministry has issued specific instructions to the Royal Air Force on the subject and has also issued a Notice to Airmen calling the attention of civil pilots to the necessity, both in their own and in the public interests, of exercising particular care when flying in the neighbourhood of historic buildings. These steps we consider are entirely adequate for the purpose in view.

XIV.—GENERAL CONCLUSIONS

106. Our general conclusions are as follows :—

(i) There is a general demand for greater freedom from Governmental control in all branches of civil aviation.

(ii) The present system of control as a whole can now be relaxed without detriment to the community.

(iii) The State has no peculiar responsibility to safeguard the life and limb of users of private or aerial work aircraft, except in so far as their activities are an actual or potential danger to the general public.

(iv) Entirely wrong values have been placed upon the relative importance of the pilot, the machine and operational activities, in arriving at the regulations to be imposed. The failure of the pilot is by far the most potential source of accidents in flying.

(v) The necessity for the certificate of airworthiness from the point of view of the protection of persons and property on the ground can be discounted.

(vi) The risk of damage to the aircraft itself concerns mainly the manufacturers, underwriters, owners and operators—not the Department of State.

(vii) Having regard to the ever-changing nature of invention and technique in aeronautics, the essential control should be as flexible as possible and capable of adjustment without delay.

(viii) The present activities of the International Commission for Air Navigation in certain directions hamper the natural development of aircraft and air communications.

(ix) A strong body of opinion favours compulsory third party insurance.

(x) There is no justification for imposing on gliders used for private flying formal requirements concerning either the safety of the machine or the proficiency of the pilot.

(xi) There is no case for special legislation for the control of Sunday flying.

XV.—SUMMARY OF MAIN RECOMMENDATIONS

107. The following is a summary of our main recommendations :—

(i) There would be political advantages in transferring the administration of Civil Aviation from the Air Ministry to a purely civil Department of State, but technical considerations preclude this at present. The position should be reviewed before the end of the next decade. (*Paragraphs 22-25.*) Adminis-
tration.

(ii) In the meantime the Civil Aviation Directorate should be made as self-contained as possible within the Air Ministry, and the status of the Director of Civil Aviation should be improved. (*Paragraph 26.*)

(iii) A certificate of airworthiness should continue to be required for aircraft engaged in regular air transport, air-taxi, joy-riding and training work. (*Paragraph 29.*) Control of
Aircraft.

(iv) The control of airworthiness of civil aircraft should be devolved from the Air Ministry to the Joint Aviation Advisory Committee of Lloyd's Register and the British Corporation Register, reconstituted as a statutory, autonomous and executive authority and renamed "The Air Registration Board." (*Paragraphs 35 and 36.*)

(v) The Air Ministry should not prescribe the detailed requirements to which aircraft should be built. (*Paragraph 40.*)

(vi) Such matters as the system of approved firms, the approval of modifications, the inspection for renewal of certificates of airworthiness, daily inspection certificates, and the system of ground engineers should be relegated to the Air Registration Board for decision. (*Paragraph 41.*)

(vii) An annual grant equal to the deficit incurred by the Air Registration Board should be made to it from Air Votes for three years and the financial arrangements should be reviewed at the end of that period. (*Paragraphs 44 and 45.*)

(viii) The representatives of the United Kingdom on the International Commission for Air Navigation should persevere in their efforts to secure that international airworthiness standards are prescribed in broad terms which will not handicap national policy. (*Paragraph 49.*) Inter-
national
Control.

An endeavour to obtain International recognition of the principle of freedom from the certificate of airworthiness for private flying should be made when the concession has justified itself by results here. (*Paragraph 54.*)

(ix) Certificates of airworthiness issued by any first-class manufacturing State having experience of aircraft construction should on a reciprocal basis be automatically validated in this country. (*Paragraph 52.*)

Control of
Private and
Aerial Work
Aircraft.

(x) The possession of a certificate of airworthiness in the case of an aircraft used for private flying or aerial work should be at the option of the owner or hirer, provided that a policy of third party insurance or an authorised alternative indemnity is effected and maintained in force in respect of it. (*Paragraph 53.*)

Control of
Experi-
mental
Aircraft.

(xi) An inventor should be free to try out an experimental aircraft, provided that it is not flown to the common danger. It should not fly over any populous area or concourse of people or aerodrome where at the time of flight conditions make it dangerous to other parties.

It should be allowed to fly over open country provided it bears identification marks, but in all cases it should be insured against third party risks. (*Paragraphs 56 and 57.*)

Control of
Pilots.

(xii) The holder of an "A" licence should be free, as now, to fly an aircraft carrying non-fare-paying passengers without an official endorsement of his licence authorising him to do so. (*Paragraph 61.*)

Documents.

(xiii) The whole system of documents needs to be completely revised.

For flying in this country private and aerial work aircraft should only be required to carry the certificate of third party insurance; public transport aircraft should carry the certificate of airworthiness, the certificate of third party insurance and the licences of the crew. (*Paragraphs 69 and 70.*)

Accidents.

(xiv) Accidents to private aircraft should only be reported and officially investigated if they involve death or serious injury to any person. (*Paragraph 74.*)

Compulsory
Third
Party
Insurance.

(xv) The introduction of a scheme of compulsory third party insurance for limited sums, or adequate alternative indemnity, against the damage caused by civil aircraft to persons or property on the ground would be in the general interests of the community. (*Paragraph 81.*)

Every aircraft should be insured against this liability for an amount calculated, in the case of heavier-than-air aircraft, on the basis of its authorised maximum total weight at the rate of £100 for each 100 lb., subject to lower and upper limits of £5,000 and £25,000 respectively. In the case of airships graduation of the amount within those limits should be reckoned according to cubic capacity on a scale to be settled by Air Ministry experts. The lower limit should apply to balloons, fixed or free. (*Paragraph 84.*)

The scheme should be assimilated as closely as possible to that for motor vehicles under the Road Traffic Act, 1930. So far as alternatives to insurance are concerned, deposits with the Supreme Court should be not less than £25,000. (*Paragraph 87.*)

It must be ensured as far as possible that the policy holds good in all circumstances when once it has been issued. (*Paragraph 85.*)

(xvi) Towed gliders and gliders carrying passengers for hire or reward should possess certificates of airworthiness, and their pilots should hold appropriate certificates of competency and licences. (*Paragraph 91.*) Control of
Gliding.

(xvii) Gliders should be included in the scheme of compulsory third party insurance. (*Paragraph 95.*)

(xviii) It would be inappropriate to attempt to impose special restrictions on Sunday flying in exercise of powers under the Air Navigation Act, 1920. Such action as is desirable should be taken under the Sunday observance ordinances. (*Paragraphs 101 and 103.*) Control of
Sunday
Flying.

108. In conclusion, we wish to express our appreciation of the industry and ability with which our Secretary, Mr. W. W. Burkett, has discharged his difficult duties. His exceptional knowledge of all the details of the regulations and other matters referred to us has greatly facilitated our task.

(Signed) GORELL, *Chairman.*
HAROLD BALFOUR.
W. LINDSAY EVERARD.
E. C. GORDON ENGLAND.*
J. T. C. MOORE-BRABAZON.*
F. HANDLEY PAGE.†
W. A. WORKMAN.

W. W. BURKETT, *Secretary.*

18th April, 1934.

* Subject to Reservation I.

† Subject to Reservation II.

RESERVATION I

On the broad issue of political administration we cannot agree with the Committee in recommending (paragraphs 25 and 107 (i)) that an investigation as to the control of Civil Aviation by the Air Ministry should be delayed for such a period as ten years.

We are of the definite opinion, and nothing emerges, to our minds, more clearly from our investigations, that no greater encouragement and help could be given to Commercial and Private Aviation than its complete divorcement now from the purely military Air Ministry.

Doubtless during the War when various inexperienced makers, normally producers of other goods, were producing aircraft to be flown as part of the duty of the Flying Corps, rigorous inspection, both of type and detail, was desirable.

No such conditions exist to-day in Civil Aviation, and yet the complicated demoralising system of technical State control has been imposed on Civil Aviation until it is wellnigh suffocated. Not the smallest case for it has been made out except the almost academic one, that the public must be protected from falling aircraft. A Ministry that can take such a view and that, further, has bound this country up with harassing international detail requirements of design, as has been done in the regulation of the International Commission for Air Navigation, seems to us to have lost all imagination and vision as to the meaning of the conquest of the air.

We refuse to look upon Aviation as for ever to be burdened with the Brand of Cain. True it has vast war potentialities, but at the same time even greater possibilities for peace and the good of mankind and international transport.

At present the whole of Civil Aviation is an appendage of a war office, held to it on the slender grounds that "research" is common to both types, and that such services as that of meteorology are required by both.

Is true research by the taxpayer for the Air Ministry, for them alone, or for all? If at present it is for all, there is no difficulty in imparting information to Civil Aviation under another political Department. If it is for the Air Ministry alone, no difference from that obtaining at present need take place.

As to meteorology, this backward science is of service to every citizen, and, although greatly encouraged by the need of good prognostication of weather for aircraft, and provided for on the Air Ministry vote, the idea that Civil Aviation should remain under the Air Ministry because the Secretary of State for Air controls the weather, is not entirely convincing.

There must be something wrong with private flying to-day, when under the present system after 15 years of Air Ministry control, in spite of subsidies and every so-called encouragement, there are now in this country, where the light aeroplane was born, comprising as it does many sport-loving and comparatively rich people, only about 400 private machines, and, although the depression must bear some blame, the increase during the last three years, as is shown in Appendix "B", is but 17.

Civil Aviation in the near future should mean, not what it is viewed as by the Air Ministry, *i.e.*, a reserve of pilots for war and a potential set of machines to draw on in time of stress, but something much grander and of importance to the whole Empire.

Considerations such as the establishing of National Aerodromes, the internal and Empire air routes bring in matters of high policy in which general questions of trade, commerce, immigration, Empire settlement, post office mails, etc., are involved. At present only one voice with authority is to be heard on this question in the Cabinet, namely, that of the Air Minister, whose views on the question must automatically be tinged, if he is applying himself strictly to his job, by war considerations. He cannot serve two masters. The glory of the British Navy was never dulled by the pre-eminence of our Mercantile Marine and the complete independence of yachtsmen. Even our proud Admiralty has many services in common with the Mercantile Marine and others on the sea, such as control of lights, buoys, harbours, etc., but they have never asked for technical control of the Mercantile Marine, nor would our ships have spread the world over if onerous regulations as to design, etc., had been enforced upon them by a war department from the beginning.

It is true to say that the design of civil transport and private machines has shown more divergence from the military in this country than anywhere else. For this the country is indebted to those in the Air Ministry concerned with Civil Aviation. Their task has been difficult, and they have done well. It will be noticed, however, that our subsidy to Civil Aviation is small, and design, when subsidies are small, tends to separate from the military type in order to make money.

The greater the subsidy, when administered by a war office, the closer machines will adhere to war types. Were they not to, why the subsidy? If there had been no subsidies and attendant detailed control to bias design dealt out by military offices, Civil Aviation would be to-day a good deal nearer "flying by itself."

An argument that will be made against separation is that foreign countries, keeping civil and military aviation even closer than we do, would put us at a great disadvantage in case of war.

We think this is a fallacious argument, as modified military machines make inefficient civil aircraft and vice versa. It does not justify our ham-stringing British Civil Aviation, that means more to us than any other country. The sooner civil aircraft are developed for solely commercial objectives, the sooner they will pay.

When this occurs, which is not allowed to occur under the present system throughout the world, Civil Aviation will be found not to be producing a type of machine really efficacious in war.

Already our civil machines on the Paris route can scarcely be claimed as really efficient bombers. The more advanced types of "private" aircraft are equally ineffective as fighters or light bombers. If separation takes place, more and more and quicker and quicker will this occur, till the hitherto insoluble difficulty of civil machines being converted to military bombers over night, which has so alarmed the international and political world, will look after itself.

Certainly it means that the Air Force will have to look to its own strength for defence. Surely this is desirable, as it will prevent unsuitable aircraft being included in the so-called potential military strength of the Empire. The Nation must be assured that with the help of our unequalled ability in designing and producing military aircraft, the whole of its war strength is the most efficient possible for its purpose.

The Navy, although helped by the Mercantile Marine in countless ways in war, does not look upon such craft as offensive war weapons, nor should it soon be possible for our Air Force to be forced to rely on the Nation's civil craft for offensive or defensive aid.

If Great Britain carries out our proposal and foreign countries do not follow our example, eventually a situation will develop in which British civil machines alone will be able to earn money and be produced at a cost which will command a ready sale to private owners, the while foreign countries will have to pay subsidies from their taxpayers to keep an inefficient service alive, as a potential military reserve.

We look upon it as imperative that the whole of Civil Aviation be taken away immediately from all connection with the Air Ministry, and placed, like other normal forms of transport, under an appropriate Minister, divorced entirely from the war complex, preferably the Minister of Transport.

In spite of some anomalies (paragraph 107 (iii), (iv), (vii) and (xvi)) which conflict with our views on these most important considerations, we sign the main report, as we subscribe to the general

conclusions and the majority of its recommendations, but, overriding every paragraph wherever the State is brought in, there must be read a divorcement from the Air Ministry and the substitution of another Government department.

(Signed) E. C. GORDON ENGLAND.

J. T. C. MOORE-BRABAZON.

RESERVATION II

I am not in agreement with Recommendation No. (i) nor with the matters contained in Section IV on which this recommendation is based, as I am of opinion that, subject to the devolution proposals contained in this report, the ultimate responsibility for the Control of Civil Aviation should remain with the Air Ministry.

(Signed) F. HANDLEY PAGE.

APPENDIX "A"

*ANALYSIS OF CAUSES OF ACCIDENTS TO CIVIL AIRCRAFT ON
THE AIR MINISTRY REGISTER

1926-1933

Total number of Accidents, 355.

- Category A 258 Cases in which no part of aircraft or power-plant was in any way at fault.
- Category B 60 Cases in which engine-failure occurred taking-off or in flight, for any reason, including shortage of fuel in tank, misuse of engine-controls, etc., etc.
- Category C 23 Cases in which the aircraft was, or became, defective in flight for any reason apart from power-plant failure. Cases of structural-failure, faulty control gear, fire-in-air, etc.
- Category D 15 Cases of exceptional nature or indeterminable.

Category A

258 Accidents, or 72·3 per cent. of total number.

- (a) 177 Errors of airmanship alone, including possible cases of pilot's physical disability.
- (b) 20 Bad weather conditions.
- (c) 38 Collision with other aircraft, overhead cables, telegraph wires, trees, buildings, etc., in conditions of reasonably good visibility.
- (d) 16 Use of unsuitable aerodromes and landings on bad ground.
- (e) 7 Interference with dual controls by passengers, either accidental or intentional.

Category B

60 Accidents, or 16·9 per cent. of total number.

- (a) 29 Engine-failure followed by errors of airmanship.
- (b) 31 Engine-failure in circumstances likely to lead to accident.

Note.—Of the 60 cases of engine-failure, 10 were due to an initial fault of design or construction, 19 to inefficient maintenance of engine or installation, and 12 were due to pilots' errors, the remaining cases being indeterminable.

* This analysis does not include accidents which occurred outside the United Kingdom, except in the case of aircraft employed on regular air services to the Continent.

Category C

22 Accidents, or 6·1 per cent. of total number.

- (a) 9 Structural failure of aircraft.
- (b) 2 Unsatisfactory aerodynamic qualities of machine.
- (c) 9 Defective aero-controls.
- (d) 2 Outbreak of fire-in-the-air.

Note.—Under (a) 5 cases involved machines engaged in "Private-flying" (in 3 of these cases acrobatics were being carried out); 1 case involved an aircraft of German origin flying for hire; and the remaining 3 cases involved machines undergoing Constructors' Trials.

Under (b) 1 case involved an experimental machine undergoing trials and the other an obsolete type of Service machine.

Under (c) in all cases but one the failure of controls was due to faulty maintenance.

Under (d) 1 case involved a Public Transport machine abroad, and the other an obsolete type of Service machine.

Category D

15 Accidents, or 4·7 per cent. of total number.

APPENDIX "B"

CLASSIFICATION OF CIVIL AIRCRAFT (HEAVIER-THAN-AIR) ON THE AIR MINISTRY REGISTER, 1920-1933

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Regular Air Transport.	Joy-riding Taxi and Miscel- laneous Aerial Work.	Schools and R.A.F. Reserve Training.	Clubs (Subsidised only up to 31.12.28).	Demon- stration Experi- mental Racing, etc.	Private. †	Held by Agents for Re-sale.	Registered.	Certified Airworthy.
31st December, 1920	56	166	—	—	—	103	—	325	149
" 1921	17	111	—	—	—	105	—	233	79
" 1922	28	80	—	—	—	58	—	166	88
" 1923	24	62	36	—	—	76	—	198	114
" 1924	21	48	38	—	—	74	—	181	83
" 1925	*36	42	44	—	—	16	—	201	104
" 1926	*27	53	51	10	53	37	—	245	162
" 1927	20	74	45	17	80	60	—	315	231
" 1928	23	81	54	28	68	125	—	415	294
" 1929	28	146	82	44	88	184	—	600	413
" 1930	35	148	98	62	98	333	34	846	615
" 1931	35	166	104	62	99	385	73	924	707
" 1932	42	158	134	70	118	402	57	981	731
" 1933	60	197	132	80	101	408	77	1,055	831

Notes.—* Several experimental aircraft are included in these figures.

† The figures shown in column 7 prior to 1925 and 1923 respectively, include aircraft used also for the purposes indicated in columns 4 and 6.

APPENDIX "C"

AIR MINISTRY

EXPENDITURE AND RECEIPTS FOR CERTIFICATES OF AIRWORTHINESS
AND GROUND ENGINEERS' LICENCES*Financial Year 1932*

Certificates of Airworthiness.	Total Expenditure (approximate).	Total Receipts.
Type and type modified aircraft ..	£ 9,000	£ 1,392
Subsequent aircraft	1,500	2,537
Renewals	2,500	1,713*
Total	£13,000	£5,642
Ground engineers' licences ..	£3,500	£722

* In addition, the sum of £2,130 was handed over to Lloyd's Register, the British Corporation Register, and the Joint Aviation Advisory Committee of Lloyd's Register and the British Corporation Register, being the renewal fees in respect of aircraft inspected by them. No account has been taken in the above figures of the expenditure incurred by these bodies.

APPENDIX "D"

AIR NAVIGATION ACT, 1920 (10 & 11 Geo. 5, c. 80)

Section 9

"9. (1) No action shall lie in respect of trespass or in respect of nuisance, by reason only of the flight of aircraft over any property at a height above the ground, which, having regard to wind, weather, and all the circumstances of the case is reasonable, or the ordinary incidents of such flight, so long as the provisions of this Act and any Order made thereunder and of the Convention are duly complied with; but where material damage or loss is caused by an aircraft in flight, taking off, or landing, or by any person in any such aircraft, or by any article falling from any such aircraft, to any person or property on land or water, damages shall be recoverable from the owner of the aircraft in respect of such damage or loss, without proof of negligence or intention or other cause of action, as though the same had been caused by his wilful act, neglect or default, except where the damage or loss was caused by or contributed to by the negligence of the person by whom the same was suffered:

Trespass,
nuisance and
responsibility
for damage.

Provided that, where any damages recovered from or paid by the owner of an aircraft under this section arose from damage or loss caused solely by the wrongful or negligent action or omission of any person other than the owner or some person in his employment, the owner shall be entitled to recover

from that person the amount of such damages, and in any such proceedings against the owner the owner may, on making such application to the court and on giving such undertaking in costs as may be prescribed by rules of court, join any such person as aforesaid as a defendant, but where such person is not so joined he shall not in any subsequent proceedings taken against him by the owner be precluded from disputing the reasonableness of any damages recovered from or paid by the owner.

(2) Where any aircraft has been *bona fide* demised, let, or hired out for a period exceeding fourteen days to any other person by the owner thereof, and no pilot, commander, navigator, or operative member of the crew of the aircraft is in the employment of the owner, this section shall have effect as though for references to the owner there were substituted references to the person to whom the aircraft has been so demised, let, or hired out."

APPENDIX "E"

NOTE ON THE ROME CONVENTION, 1933

1. This Convention, entitled "Convention for the unification of certain rules relating to damage caused by aircraft to third parties on the surface," was signed at Rome on the 29th May, 1933.

2. It has arisen out of a movement towards the international unification of private aerial law which originated some ten years ago, and in connection with which three International Conferences on Private Aerial Law have so far been held :—the first at Paris in 1925, the second at Warsaw in 1929, and the third at Rome in 1933. The machinery of this movement includes a "preparatory" committee known as the Comité International Technique D'Experts Juridiques Aériens, or, more briefly and usually, the "C.I.T.E.J.A.". This Committee was established in 1926 on the recommendation of the Paris Conference of 1925, and its main duty is to prepare drafts on suitable subjects for consideration by the periodic International Conferences. It consists of experts nominated by the various Governments for purposes of discussion and drafting, and at present some 30 States are represented on it.

It may be mentioned that the present Convention has had a predecessor arising in the same way, in the Convention as to international carriage by air, to give effect to which the Carriage by Air Act, 1932, was passed. The latter Convention was signed at the Warsaw Conference of 1929, the draft there discussed and modified having been prepared by the C.I.T.E.J.A. by way of amplification and revision of a text drawn up at the Paris Conference of 1925, and it has now been ratified by a considerable number of States.

3. In the case of the present Convention, the draft was similarly prepared by the C.I.T.E.J.A., a task which extended over several years, and was then discussed and modified at the Rome Conference of this year, at which over 40 countries were represented.

4. The main provisions of this Convention may be summarised as follows :—

(1) *Absolute liability for damage.*—It imposes liability for damage caused to persons or property on the surface by aircraft in flight (including the operations of departure and arrival), or by anything falling from such aircraft, or (with certain exceptions) by any person on board them. This liability is absolute in the sense that it arises without any question of negligence, and can be diminished or set aside only when the damage has been caused or contributed to by the fault of the injured party (Arts. 2 and 3).

(2) *Person liable*.—This liability attaches to the “operator” of the aircraft, viz., any person at whose disposal it is and who makes use of it for his own account (Art. 4). A similar liability attaches to persons using aircraft without the operator’s consent, and to operators who have not taken proper steps to prevent unlawful user (Art. 5).

(3) *Limitation of liability*.—Liability is limited in amount on the basis of the maximum total weight of the aircraft, the figure being 250 francs per kilogramme (about 29s. per lb. at present rate of exchange*) with, however, lower and upper limits of 600,000 francs (about £7,700) and 2,000,000 francs (about £25,650) respectively. One-third of this is appropriated to making good damage to property and the remaining two-thirds to damage to persons with, in the latter case, a limit of 200,000 francs (about £2,560) for injury to any one person (Art. 8). The benefit of this limitation is, however, lost and liability becomes unlimited, (a) in certain cases of gross negligence or wilful misconduct on the part of the operator or his agents, and (b) if there has been a failure to insure (or otherwise provide guarantees) against the liability as required by the Convention (Art. 14).

(4) *Compulsory insurance*.—Every aircraft registered in a contracting State must, for the purpose of flying over another contracting State, be insured against the liability in question up to the limits fixed by Art. 8 (Art. 12 (1)). Alternatively other forms of guarantee, viz., deposit of securities or bank guarantee may be substituted for insurance (Art. 12 (2) : Art. 15 contains special provisions as to their amount in certain cases).

(5) *Application of Convention*.—The Convention applies to surface damage done in one contracting State by an aircraft registered in another contracting State, i.e., it does not apply to “home” flying (Art. 20). Nor does it apply to military, customs or police aircraft (Art. 21), or to cases where compensation is governed by certain contracts of carriage or employment (Art. 22).

(6) *Ratification*.—The Convention requires five ratifications to bring it into force ; it will then come into force between the High Contracting Parties who have ratified, 90 days after the deposit of the fifth ratification (Art. 24 (2)).

5. The Convention, which remained open for signature until 1st January, 1934, has been signed on behalf of the following 26 countries :—Austria, Belgium, Brazil, Czechoslovakia, Denmark, France, Germany, Great Britain and Northern Ireland, Guatemala, Honduras, India, Italy, Japan, Lithuania, The Netherlands, Norway, Poland, Roumania, Salvador, San Marino, The Holy See, Spain, Switzerland, the United States of America, Turkey and Yugoslavia.

* Approximately, 78 francs = £1.

